aivancity

SCHOOL FOR TECHNOLOGY, BUSINESS & SOCIETY PARIS-CACHAN

LAUNCH of aivancity Paris-Cachan

A SCHOOL AT THE SERVICE OF AN ARTIFICIAL INTELLIGENCE BUILT ON TRUST AND RESPONSIBILITY

Editorial

PAGE 1

"We invent an educational model beyond classical disciplinary boundaries: a total hybridization between technology, business management and ethics".

Tawhid CHTIOUI,
aivancity Founding President

DISCOVER AIVANCITY'S PROGRAMS OFFER

PAGE 24

AIVANCITY INVENTS THE GUARANTEE OF THE DIPLOMA LIFETIME UPDATE©

PAGE 19

Download the digital version via your smartphone or visit our website **www.aivancity.ai**

SEPTEMBER 2020

CONTENTS

EDITORIAL	1
FOCUS • AIVANCITY PRESENTATION	2
FOCUS • ARTIFICIAL INTELLIGENCE TECHNOLOGIES	4
BOARD	6
FACULTY	10
FOCUS • ETHICS AND AI	14
PARTNERSHIPS	16
FOCUS • THE AI AND DATA BUSINESSES	20
AIVANCITY PROGRAMS	24
GRANDE ÉCOLE PROGRAM	26
BACHELOR	32
MSC	36
EXECUTIVE EDUCATION	40
ONLINE AIVANCITYX	48
SUMMER SCHOOL	50
CAMPUS	52
DOORS OPEN DAYS	56

Tawhid Chtioui

AIVANCITY'S PRESIDENT AND DEAN

Founder of the school, professor, international expert and entrepreneur in the field of higher education and training.

Holder of a PhD in Management from the Paris Dauphine University and of the l Leadership Development Program in Higher Education at Harvard University, he has held senior and scientific positions in different business schools in France.

After leading emlyon's development and management activities in Africa for three years, he was president of the board of directors and managing director of emlyon business school in 2019.

He is the author of several scientific articles and has taught in numerous schools and universities in France and abroad.

Tawhid Chtioui is a Knight of the Order of the Palmes Académiques (a French honorary award, promotion of July 14, 2016) and has also received several international awards such as the "Top 100 Leaders in Education Award" of the Global Forum on Education & Learning (2019) and "The Name in science & Education Award" of the Socrates Committee Oxford Debate University of the Future (2019).

↓ EDITORIAL

ARTIFICIAL INTELLIGENCE WILL CHANGE THE WORLD

Artificial Intelligence (AI) has become one of the keys to success for any company that wishes to improve the whole of its business processes, from production to customer relations, in all activity sectors. AI solutions implementation also aims to meet several challenges of tomorrow's society, going far beyond the mere digitization of the economy: health, education, mobility, housing, security, energy... all sectors are, or will be, impacted.

Beyond its technical challenges, AI currently raises many questions regarding its impact on business, management, human beings and society. It has become essential to accelerate AI's applications while considering the evolution of business practices and society's expectations.

More than ever before, it is therefore necessary to train experts in all the bricks of AI and Data science thematic ecosystem. They must be able to not only develop computer programs to speed up companies' performances and ensure the transition to a 4.0 industry, but also to allow humanity to make progress in all areas, while at the same time ensuring that technological evolutions are involved in the development of a fairer, more just world, and a more ethical and humane one.

It is by understanding and reinventing our environment to improve it that we will ensure AI's good quality implementation. Education and research are essential levers in this regard. Indeed, they help us comprehend, reinvent and improve our environment. Thanks to this process, a deceptively simple but complex one to achieve, humanity can evolve.

Artificial Intelligence will assuredly have a critical impact on tomorrow's society. We must be prepared. AI and the emergence of Big Data cause profound mutations in jobs and business functions, offering a wide range of hiring possibilities for highly qualified graduates. The competition for skilled workers, the search for AI and data specialists is raging on job markets in France and around the world… and it's only just beginning.

There are reportedly only 300,000 AI researchers and practitioners globally, while the demand is in the millions, according to a December 2017 survey by the Tencent Research Institute.

To release the clamp, MP Cédric Villani proposed in his March 2018 report to triple in three years the number of people trained in AI, notably by extending the field of talents to the Bac (baccalaureate) +2 and +3 graduates" (JDN, X. Biseul, April 2019)

The implementation of AI solutions in organizations is not just a technical issue; it requires an in-depth technical knowledge of the issues at stake in business management and the whole spectrum related to matters of feasibility, validity, acceptability, trust and responsibility.

As a place for initial training (with post-baccalaureate to Bac +8 programs), a place for exchange and meetings between the academic and socio-economic worlds, aivancity is also a place for professional training.

This continuing education offer is broad and extensive: it concerns engineers keen on understanding AI and data science developments, and less technical profiles, so long as they are aware of the importance of the field for their professional development.

Accordingly, to the triptych of our programs' DNA (AI, Management, Ethics) corresponds another triptych, made up of the three poles, initial training, place of exchanges and continuing education: let me invite you to discover them in this brochure.

aivancity, School for Technology, Business & Society Paris-Cachan

aivancity is a hybrid school built around the triptych Artificial Intelligence, Business and Ethics. Its mission is to prepare future "AIgineers"® capable of responding to the many challenges of the economy and society relating to the exploitation of the potential of data and artificial intelligence: graduates capable of developing computer programs to accelerate business performance and ensure the transition to a 4.0 industry, but also to work for humanity's progress in all areas, while ensuring ethical rules evolve in line with technical and societal developments.

Territorial anchoring and openness to the local community:

Developing the school in close connection with its environment by forging partnerships with neighboring schools and companies in the city as well as the region, by opening events organized on campus to the public, and by hosting various functions and happenings that contribute to the wealth of activities in the territories.

Employability:

to support the development of individuals' skills so they can succeed in their personal development and professional career, all along their lives, by being efficient players within responsible and competitive organizations, whatever the region of the world.

Diversity:

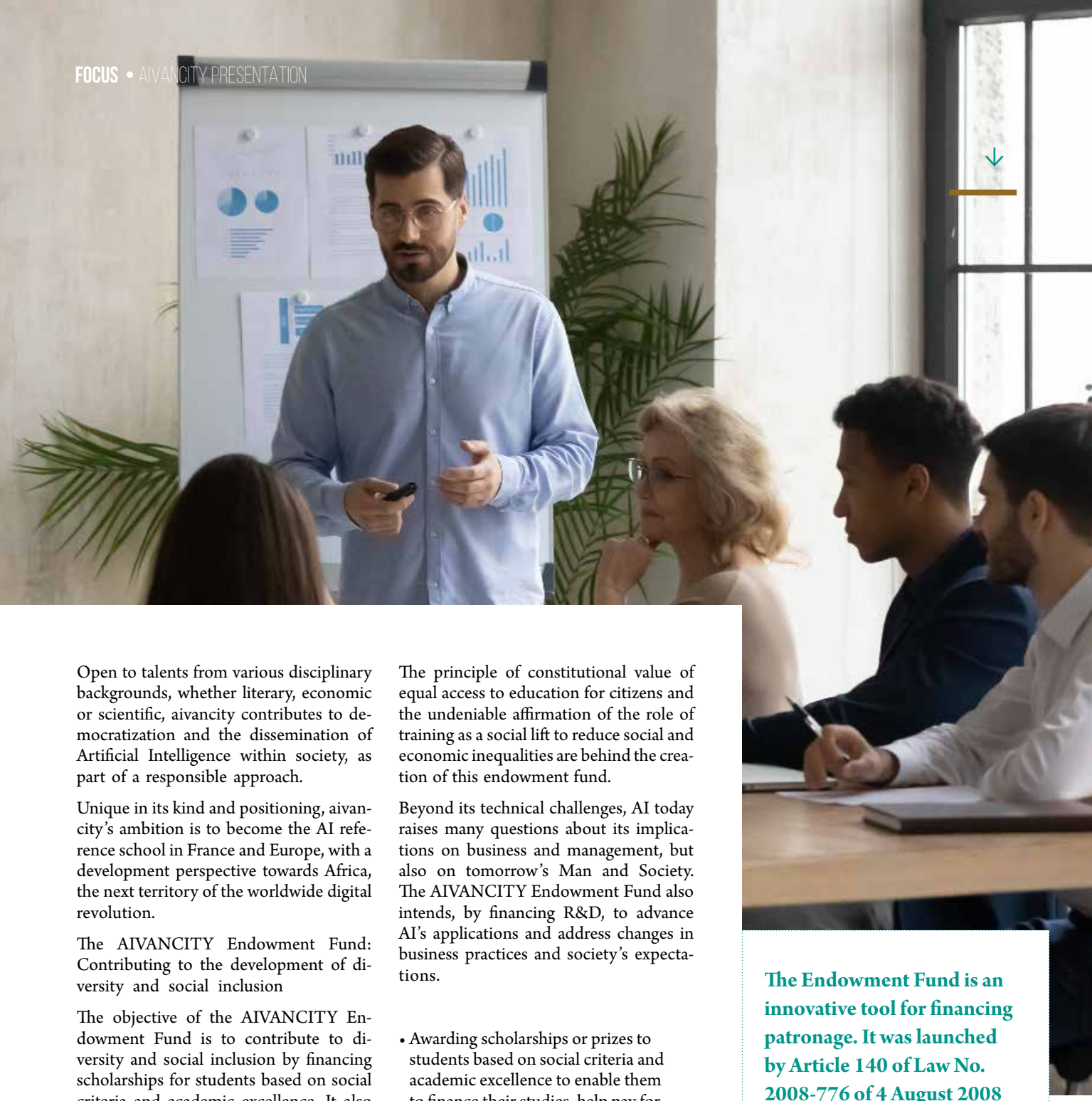
aivancity is committed to promoting diversity and social inclusion and to contributing to collective efforts to help guide young people in disadvantaged areas.

Responsibility:

Ethics and responsibility are important criteria in the selection of candidates. These are also priority areas of our training in terms of technical and human skills, and a promise made to the recruiters who will hire our graduates.

aivancity has taken the form of a mission-driven company and has become the first higher education institution in France to adopt this status. This is what aivancity, school for technology, business and society, places at the heart of its statutes: commitments to employability, diversity, responsibility, territorial anchoring and openness to the city. The values it upholds are also the missions it sets for itself. These define the school's very essence, and will be monitored by an external body.

Mission-driven company: The law relating to the growth and transformation of companies, known as the 2019 Pact law, introduces the quality of a mission-oriented company. It allows a company to publicly state its status as a mission-driven company by specifying its main purpose and one or more social and environmental objectives that the company has set itself to pursue as part of its business.



Open to talents from various disciplinary backgrounds, whether literary, economic or scientific, aivancity contributes to democratization and the dissemination of Artificial Intelligence within society, as part of a responsible approach.

Unique in its kind and positioning, aivancity's ambition is to become the AI reference school in France and Europe, with a development perspective towards Africa, the next territory of the worldwide digital revolution.

The AIVANCITY Endowment Fund: Contributing to the development of diversity and social inclusion

The objective of the AIVANCITY Endowment Fund is to contribute to diversity and social inclusion by financing scholarships for students based on social criteria and academic excellence. It also aims to develop scientific research activities that contribute to the evolution of Artificial Intelligence and Data science knowledge and practices, while integrating trust and ethics principles.

The fund also aims to promote and develop excellence-based education within its regional and professional environment and guarantee equal access to it.

The principle of constitutional value of equal access to education for citizens and the undeniable affirmation of the role of training as a social lift to reduce social and economic inequalities are behind the creation of this endowment fund.

Beyond its technical challenges, AI today raises many questions about its implications on business and management, but also on tomorrow's Man and Society. The AIVANCITY Endowment Fund also intends, by financing R&D, to advance AI's applications and address changes in business practices and society's expectations.

- Awarding scholarships or prizes to students based on social criteria and academic excellence to enable them to finance their studies, help pay for international mobility and/or carry out a professional project;
- Accompanying people in difficulty to establish a skills assessment and define a strategy for professional reintegration;
- Financing of training courses for people struggling with difficulties.

The Endowment Fund is an innovative tool for financing patronage. It was launched by Article 140 of Law No. 2008-776 of 4 August 2008 on the modernization of the economy, which combines the strengths of the 1901 Association Law and the Foundation. Endowed with full legal personality, the Endowment Fund consists of an irrevocable allocation of assets to carry out a mission or a work of general interest.

ARTIFICIAL INTELLIGENCE **TECHNOLOGIES**

DAVID CRESSEY

Head of BeautyTech Accelerator - EMEA - Data & AI at L'Oréal

Member of the Board of aivancity

University research on the one hand, and its application in companies on the other: two essential aspects of progress in artificial intelligence. Each of these approaches this new object of study in its own way - its ethical and technological implications - in order to draw all the threads from it and continue to innovate. A cross interview of two major players in the field.

What are the technical skills required by the business world when it comes to AI?

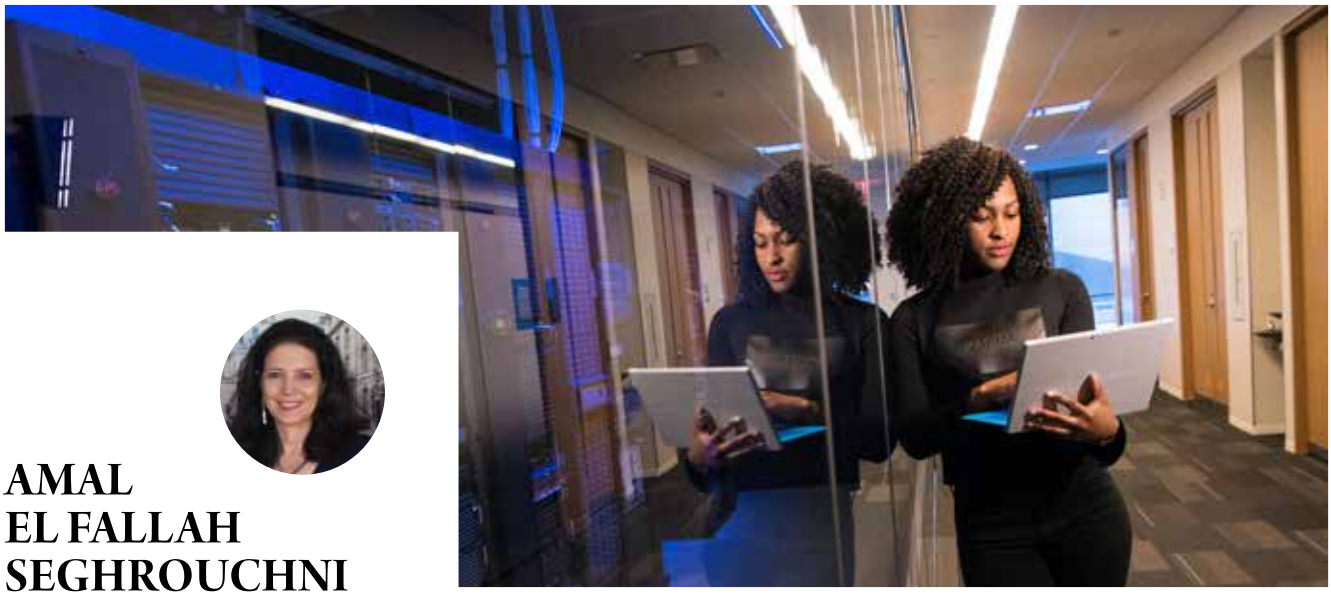
In the beginning, data scientists were expected to be able to design models, put them into production, explain their usefulness to non-specialists, all without a team and without IT support... Of course this does not exist, so we have since diversified profiles: There are researchers, who work on the data itself, machine learning experts who do production, data experts, halfway between data knowledge and IT... It's also very important to have profiles to act as a transmission belt between all skills: data translators or business accelerators, who understand data science, IT, business issues, and who can also present research results to executives. Moreover, these skills are continuously evolving: more than knowledge, it is now necessary to pass on a state of mind to students - it is essential that they continue, throughout their careers, to learn, to take an interest, to explore technologies that are still unknown today.

How is L'Oréal using AI technologies today?

We use machine learning for many applications. Whether it is predicting trends in the world of beauty to fuel our product innovation or forecasting our sales to organize our supply chain, data is at the heart of our projects. To better understand our customers, one of our significant challenges is processing the colossal amount of freely available data. For instance, notices and posts left online: we identify critical information to bring it to product teams' attention and fuel our excellence goal. We also work with image recognition to enable our customers to project the expected effect of a product on their faces, or analyze their wrinkles and brown spots: we can then propose a diagnosis and a beauty routine tailored to everyone's needs.

Which technologies will become increasingly important in the coming years?

After processing structured data, we are now interested in unstructured data, i.e. images and text. We already have mature AI technologies that allow us to segment, locate and generate objects. We are reaching a similar level of maturity for text data: the challenge is to understand the text, to process natural language even if it is incomplete or imprecise, and to respond in an automated way. AI will thereby be able to interact. By putting together models that perform elementary tasks, we are getting closer to human intelligence... Except that human intelligence is unsupervised, it learns by itself: a baby does not wait for someone to explain how to feed, walk and talk. He discovers it by itself by trying out the world around him. Artificial intelligence is still a long way from that. A modeling tool that comes closest to this method would be reinforcement learning, which trains AI through experimentation (I'm a robot, I learn how to cross, I'll get run over 1,500 times, but in the end, I'll get there). I believe this will be extremely important in the years to come.



AMAL EL FALLAH SEGHROUCHNI

Professor at the Sorbonne University, specializing in Artificial Intelligence,a member of the UNESCO World Commission on the Ethics of Scientific Knowledge and Technology (COMEST).

Member of the Board of aivancity

What are the technical skills required by the AI research community?

In addition to the technical knowledge in mathematics and computer science provided in current curricula, future AI researchers must develop soft skills and intuition. In this new era of a ubiquitous AI applied in many fields, it is important to have the knack of teamwork and have a sense of listening, open-mindedness, and dialogue. Today, AI is the bearer of multidisciplinary, innovative and disruptive solutions. For this reason, collaborative approaches should be encouraged.

What is the situation today in terms of algorithm bias? And what are the solutions?

Some AI algorithms may indeed provide incomplete or erroneous solutions due to different biases. Cognitive biases generate a distortion concerning reality and can lead to discriminatory practices against individuals. Statistical or data biases (such as selection biases) emerge when the population studied characteristics are different from those of the general population. Endogeneity bias occurs when it is a matter of predicting from past data without taking into account future developments or unexpected variations. Finally, whether voluntary or not, economic biases can be observed when algorithms only target specific segments of the population, or when they are used to manipulate consumers (such as search engine manipulation).

Tomorrow's solutions must take these risks of bias into account and fight against their appearance or instrumentalization. AI must be revisited for resilient, egalitarian and ethical use. Best practices should:

- have reliable and well-calibrated data;
- ensure the validity of statistical learning procedures (hypotheses and decision rules used);
- guarantee the transparency, fairness, and equity of decision algorithms (e.g. recommendation, recruitment, diagnosis algorithms, etc.).

Can AI help fight viruses?

During this health crisis, AI has made it possible to create mobile applications to raise awareness and help people stay connected; dematerialized services (B2B or B2C) and exchange platforms to overcome lockdown and ensure service continuity (teleworking, distance learning...); deploying drones to inform and protect citizens, or provide telemedicine consultations, automate decision making, guide ambulances to reach hospitals as quickly as possible, and plan in uncertainty the care of a patient in an emergency... Other statistical methods based on automatic learning, such as neural networks and deep learning, make it possible to predict the epidemic's spread based on the data collected.

AN INVOLVED AND HIGHLY QUALIFIED GOVERNANCE

The school board is composed of **3 colleges**

The aivancity school for technology, business & society's Board is the school's strategic think-tank, providing advice and recommendations that are advisory in scope.

Cross-fertilization between the school's vision and potential and the board members' scientific, professional and societal expertise nourishes the leaders' reflection and enable decision-making.

Its role consists most notably in providing guidance on structuring themes, such as scientific choices, program offerings, strategy, human resources supporting the implementation of strategy, international development, investment choices or then again risk management; in supporting aivancity in the implementation of its corporate purpose, in compliance with its commitments as a company serving a mission; and more generally in enforcing its societal impact. It also examines the school's overall financial situation and makes recommendations to ensure its sustainability.

THE SCIENTIFIC COLLEGE

It brings together outstanding personalities from the academic world, recognized for their contributions and impact in the school's fields of expertise. Its mission focuses mainly on scientific choices, recognition of diplomas, program offerings, and the school's academic resources. It is currently composed of:

Dr. Nozha Boujemaa

is Chief Science & Innovation Officer at Median Technologies, and Research Director at INRIA. She is an advisor to the JST (Japan) for the national Big Data program. She co-pilots the DATA/AI axis of the French government mission for business transformation. She is a Knight of the National Order of Merit. She is a TEDx Speaker and an expert in semi-supervised and active machine learning and multimedia information retrieval on a large scale.

"aivancity's program and pedagogical project correspond to the interdisciplinary vision of the development of artificial intelligence that I have been developing for several years through the different projects I carry out on national, European and international levels. I support this strategic pedagogical choice through my involvement in aivancity's scientific board to contribute to the training of new generations in interdisciplinary fundamentals for the efficient, successful and equitable socio-economic deployment of these technologies for all."

Prof. Laurent Champaney

is Executive Director (Chairman) of Arts et Métiers and Vice-President and President of the Upstream Commission of the Conférence des grandes écoles.

"aivancity constitutes a novelty in the landscape of higher education in artificial intelligence by offering a very transverse vision of the field: not only technical but also Business and Ethics.

The partnership with Arts et Métiers demonstrates our desire to diversify and open up to these new AI and Data areas. The aim is to work together in a project-based approach, as part of a responsible vision that is sensitive to society's challenges. This approach is at the heart of the values shared by Arts et Métiers and aivancity".

Prof. Amal El Fallah Seghrouchni

is exceptional class Professor at Sorbonne University, head of the Multi-Agent Systems research group and co-leader of the Artificial Intelligence and Data Sciences research axis at LIP6 (she has directed more than 30 PhD theses in AI and Multi-Agent Systems). She is a member of the World Commission on the Ethics of Scientific Knowledge and Technology (COMEST) at UNESCO (2020-2023) and associate editor of the prestigious scientific journal: IEEE transactions on Artificial Intelligence.

Prof. Jean-Gabriel Ganascia

est Professeur d'informatique à la faculté des sciences de Sorbonne Université et membre senior de l'Institut Universitaire de France. Spécialiste d'Intelligence Artificielle (EurAI Fellow – European Association for Artificial Intelligence), d'apprentissage machine et de fouille de données, ses recherches actuelles portent sur la fusion symbolique de données, sur le versant littéraire des humanités numériques, sur la philosophie computationnelle et sur l'éthique des technologies de l'information et de la communication. Il est également président du comité d'orientation du CHEC (Cycle des Hautes Etudes de la Culture) et membre du comité pilote de l'éthique du numérique du CCNE (Comité Consultatif National d'Éthique).

"The deployment of AI is transforming society profoundly; aivancity, through its positioning and pedagogical project, which places great emphasis on interdisciplinarity and ethics, takes full measure of this."

Prof. Tawfik Jelassi

is Professor of Strategy and Technology Management at IMD Lausanne, and was Minister of Higher Education, Scientific Research and Information and Communication Technologies in the Tunisian government (2014-2015). He is decorated with the National Order of Merit in the field of education and science, the Order of the Republic, as well as about fifteen international honors.

Jean-Yves Le Gall

President of the The National Centre for Space Studies since 2013 and Honorary Ambassador of the IAF (International Astronautical Federation). He's Former CEO of Arianespace and Officer of the Legion of Honor and Commander of the National Order of Merit.

"To my knowledge, aivancity is the first higher education institution in France to offer this approach to AI, centered around three poles, Tech, Management and Ethics. aivancity will also welcome students of various profiles, not necessarily from purely scientific backgrounds. It is these societal dimensions, with commitments in terms of employability, diversity, social inclusion, openness to the city and to the world, which seem fundamental to us in today's world".

Prof. Khaled Letaief

is the New Bright Professor of Engineering and Chair Professor of Electronic and Computer Engineering at the Hong Kong University of Science and Technology (HKUST). He is an internationally recognized leader in wireless communications and networks with research interest in artificial intelligence, Internet of Things, big data analytics systems, tactile Internet, as well as 5G systems and beyond. In these areas, he has over 640 journal and conference papers with over 36,000 citations and h-index of 87. He also has 15 patents, including 11 US inventions. He was also listed among the 2020 top 30 of AI 2000 Internet of Things Most Influential Scholars.

"aivancity is a newly established school that introduces a transformative new multidisciplinary approach to higher education by putting AI at its core with the ultimate objective of enabling students to truly unleash their full potential and become great leaders in the future intelligent and hyper-connected world."

Jean-Michel Nicolle

Is Director of the EPF, School of Engineering since 2008, Vice-President of Cedefi (Conference of Directors of French Engineering Schools) since 2018, President of the n+i Network and President of the Avenir entrance exam. He's Knight in the orders of the Academic Palms and the Legion of Honor.

"The positioning of the pedagogical project is both innovative and tailored to learners' training needs and of companies' expectations. The aivancity project is a "sustainable" and agile training approach in an environment undergoing profound upheavals; it is also a "responsible" training solution as it warrants successful completion in particular within the framework of a contract of trust. Therefore, it is a precursor and today has no equivalent in the French higher education landscape."

Prof. Franck Pacard

Engineer X 84 (the 'X' is another word for the prestigious Ecole Polytechnique), Roads and Bridges Engineer, PhD in Math and HDR, he has authored more than 90 research papers in geometry and analysis of partial differential equations. Researcher at the École des Ponts, then Professor, Director of the doctoral school at the Paris-Est Créteil University, he joined the Ecole Polytechnique in 2010 as Professor of Mathematics and Director of the Laurent Schwartz Mathematics Center and was then appointed Director of Teaching and Research at the X from 2012 to 2019.

Prof. Guy Pujolle

is Professor Emeritus at Sorbonne University and a world reference in the field of networks; he is also visiting professor at many international universities such as NCSU, Stanford, Rutgers, UQAM, BUPT Beijing. He has authored more than 200 scientific publications and about twenty works, and piloted development projects including the 1st Gbps network, the 1st ATM prototype, the 1st patents and prototypes on IPR and Wifi controllers, Green Communication or IoT Security... Besides, he received the Grand Prix of the French Academy of Sciences in 2013.

"Artificial intelligence is THE technology of the 2020s. It is introduced everywhere, to help, manage, control and automate. As a network and telecommunications expert, I believe that AI has become essential to move ahead towards a new generation within which access to the data will be personalized. As we face the impossibility of recruiting qualified personnel in this field, the only solution is to train a new generation of students with strong expertise in AI. aivancity is exactly the answer I expected."

THE INSTITUTIONAL COLLEGE

It is made of representatives of the school's institutional partners and its work focuses mainly on implementing aivancity's purpose, fulfilling its commitments as a company with a mission and, more generally, strengthening its societal impact. It is composed of:

The City of Cachan

Subject to City council decision

represented by Hélène de Comarmond, Mayor of Cachan

"I was able to appreciate the project of establishing aivancity in Cachan, as it is aligned with the coherence and complementarity of other educational and research institutions, in a wholly renewed campus, open to the city and in a citizen approach to sustainable development and landscaping. This is why I am proud that aivancity bears Cachan's colors in its name and contributes to the reputation of the city and its campus throughout the world. The City of Cachan is therefore delighted to welcome aivancity to its territory and to envisage the construction of a partnership, a fruitful one for the city and its people."

Photo credit: City of Cachan - Margot Lhermite

The Syntec Numérique

(The French IT federation) represented by **Soumia Malinbaum**, Administrator and President of the "E-education and Training" commission and of the Numeric'emploi plan of the Syntec Numérique; Keyrus Vice-President Business Development.

The Gravissimum Educationis Foundation, working within the Ministry of Education of the Holy See (Vatican)

represented by **Professor Monsignor Guy Réal Thivierge**, Secretary General

Val-de-Marne Chamber of Commerce and Industry

represented by **Jean-Christophe Lourme**, ValoTec Chairman

The Caisse d'Epargne Bank Ile-de-France

represented by **Patrice Mavilla**, Director of Eco-Social, Health and Institutional Affairs

Choose Paris Region

represented by Franck Margain, President of Choose Paris Region, Regional Councillor for Ile-de-France and Councillor at the Paris City Hall

THE ENTERPRISE COLLEGE

composed of professionals from the business world chosen for their expertise in AI and Data Science subjects or in the field of human resources and employment or as representatives of the school's partner companies, its work focuses mainly on financial balances, human resources, investment choices and risk management.

David CRESSEY

Head of BeautyTech Accelerator

EMEA - Data & AI at L'Oréal

"Today there is a need for hybrid people, who have both a professional tropism and an appetite for technical subjects, halfway between consultant and engineer, able to design and operate tomorrow's artificial intelligence solutions and bring the entire value chain together in a team. And that's what aivancity's educational project is all about..."

Corp Agency

specialized in the creation and organization of congresses and exhibitions "dedicated to new technologies, including the very famous Big Data & AI Paris exhibition represented by Olivier Cadi, CEO and Founder.

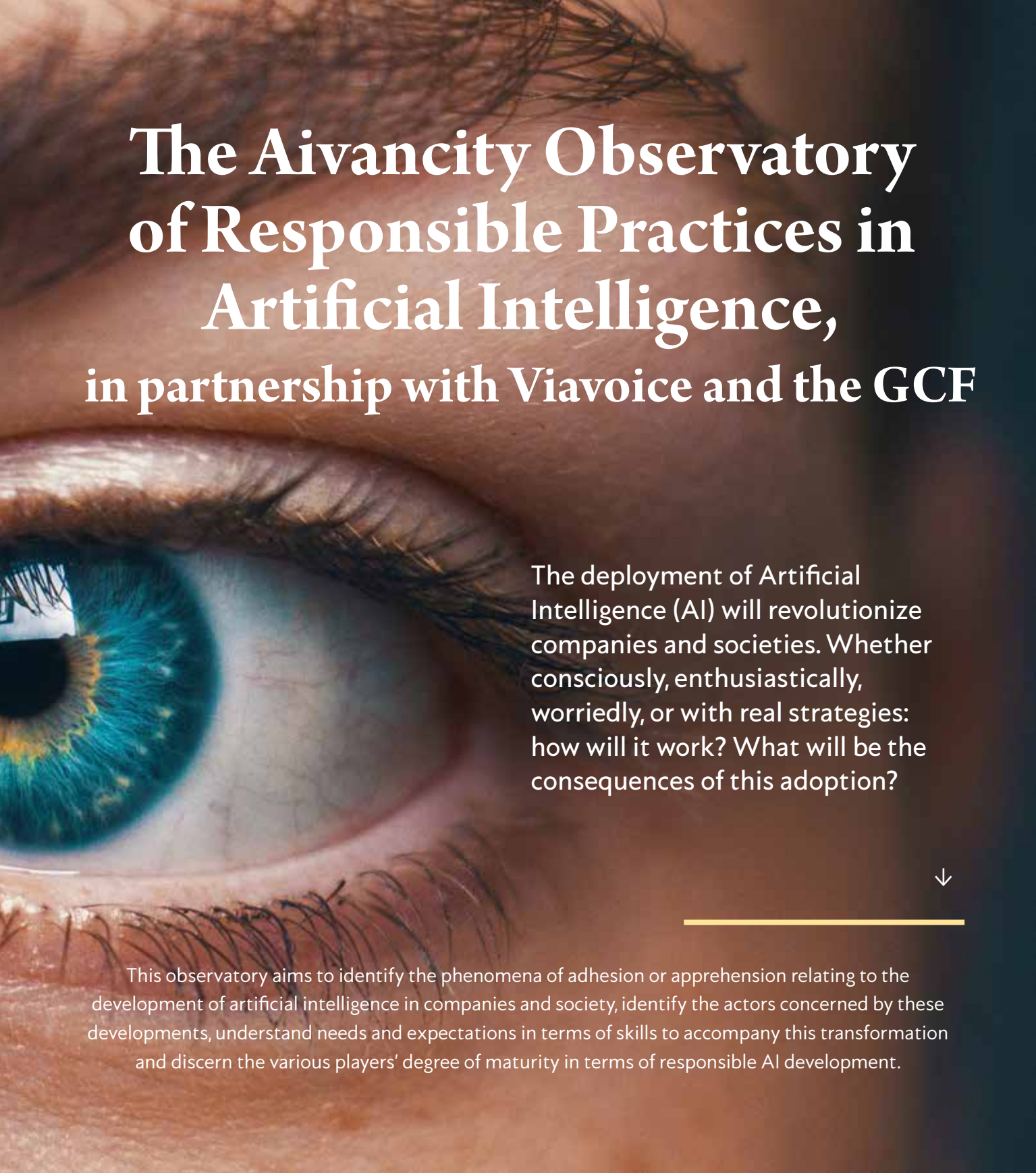
Dr. Amelle Elkhabli

France Future-Ready Skill Lead - Microsoft France

"Microsoft is pleased to support aivancity and its ambition to become the first Hybrid school of artificial intelligence, business and ethics. Microsoft, a major player in the world of cloud software and services, with its strong roots in the world of education, is delighted to provide aivancity learners with Microsoft solutions and content to support the development of their professional skills».

Crédit Mutuel Bank Ile-de-France

represented by **Raphaël Rebert,** Chief Executive Officer.



The Aivancity Observatory of Responsible Practices in Artificial Intelligence,

in partnership with Viavoice and the GCF

The deployment of Artificial Intelligence (AI) will revolutionize companies and societies. Whether consciously, enthusiastically, worriedly, or with real strategies: how will it work? What will be the consequences of this adoption?

This observatory aims to identify the phenomena of adhesion or apprehension relating to the development of artificial intelligence in companies and society, identify the actors concerned by these developments, understand needs and expectations in terms of skills to accompany this transformation and discern the various players' degree of maturity in terms of responsible AI development.

The first 2021 edition of the observatory will focus on a sample of 400 business leaders coming from 20 to 500-employee SMEs.

Contact us if you wish to be a partner of this observatory:
contact@aivancity.ai

A Faculty

that perfectly illustrates aivancity's positions on behalf of hybridization and excellence

From its launch onwards, aivancity has been equipped with a very high level faculty covering the different areas of its interdisciplinary positioning: AI, Business Management and Ethics.

32
PARTICIPATING PROFESSORS

47%
INTERNATIONAL PROFESSORS, TOTALING 10 NATIONALITIES

50%
ACADEMICS

50%
PROFESSIONALS

75%
PHD HOLDERS

10
DOMAINS OF SPECIALISATION

Actively involved in educational design, aivancity's faculty contributes to the various programs' implementation and evolution. They are supported by independent lecturers who also participate in teaching and supervision by transmitting their know-how in specific fields.

aivancity relies on the tight relationship between the teaching team and the student community to ensure each student's best possible progression towards his or her professional goal. The classes' size, the number of students per class, the significant volume of hours allocated to individualized pedagogical follow-up and project tutoring associated with the faculty's quality and experience, demonstrate in concrete terms the school's will to offer learners a high-level learning experience.

The pedagogical department ensures the design and coordination of the pedagogical content, in conjunction with the various Board committees and the multiple stakeholders (certification bodies, recruiters, partners, etc.). The program directors are responsible for implementing and coordinating the teaching teams and the follow-up of the learning experience.

Ahmed Abbessi

Professeur Expert en Transformation DigiExpert Professor in Digital Transformation, Senior Industry Manager and Senior Analytics & Measurement Lead at Google.

Dr. Doreid Ammar

Academic Director and Professor of Data Science

Dr. Aladdin Ayesh

Visiting Professor in Artificial Intelligence, Professor at De Montfort University (UK).

Dr. Nozha Boujemaa

Expert Professor in Artificial Intelligence and Board Member, Chief Science and Innovation Officer at Median Technologies.

Marion Carré

Expert Professor in Artificial Intelligence and the Arts, Co-founder and CEO of Ask Mona.

Dr. Tawhid Chtioui

President of aivancity and Professor of Management.

David Cressey

Expert Professor in Artificial Intelligence and Board Member, Head of BeautyTech Accelerator - EMEA at l'Oréal.

Hubert Etienne

Affiliated Assistant Professor in Artificial Intelligence Philosophy and Ethics, Doctoral student at Facebook AI Research and at the Ecole Normale Supérieure.

Dr. Ysens de France

Associate Professor in Artificial Intelligence Law, Director of Prospective at the Sapiens Institute.

Dr. Emmanuel Goffi

Associate Professor in AI Ethics, Director of the Ethics & Artificial Intelligence Observatory of the Sapiens Institute

Hugo Hadjur

Assistant Professor in Artificial Intelligence and Data Science, PhD student in co-supervision at aivancity and ENS in Lyon.

Dr. Tawfik Jelassi

Visiting Professor in Technology Management and Board Member, Professor in Strategy & Technology Management and Co-Director of the OWP program at IMD Business School.

Dr. Yang Jiao

Expert Professor in Data Science, Lead Data Scientist at Coface.

Dr. Anas Kharboutly

Expert Professor in Computer Vision and Deep Learning, Manager in Artificial Intelligence at DRONE VOLT and Aerialtronics.

Dr. Virginie Mathivet

Professor Expert Machine & Deep Learning, Director of R&D TeamWork Corporate.

DR. DOREID AMMAR

Academic Director and Professor of Data Science

«AI is transforming the organization of our society by imposing itself little by little in our daily lives. Technological innovations in AI must face not only technical issues, but also human, ethical and societal issues to promote a responsible AI to the growth of tomorrow's society. It is therefore, more than ever, essential to train responsible actors in artificial intelligence. This is one of the reasons why I decided to join aivancity in order to contribute to the education of future AIgineers® capable of facing the many challenges of AI".

Dr. Amel Mhamdi

Associate Professor in Machine & Deep Learning.

Dr. Valérie Morignat

Associate Professor in AI Strategy & Design, Founder and CEO of Intelligent Story LLC.

Dr. Medhi Nekhili

Affiliate Professor in Management, Director of the ARGUMANS laboratory of Le Mans University.

Dr. Frédéric Oru

Expert Professor in Mathematics for Artificial Intelligence and Data Science, President and Founder of AI4BETTER.

Dr. Guy Pujolle

Affiliate Professor of Artificial Intelligence and Board Member, Professor Emeritus at the University of Paris-Sorbonne.

Valentin Schmite

Expert Professor in Artificial Intelligence and Culture, Co-founder and Managing Director at Ask Mona.

Maeliza Seymour

Expert Professor in AI Coding, CEO of CodistAI.

Ludan Stoecklé

Expert Professor in Artificial Intelligence, CTO of the Artificial Intelligence Lab of BNP Paribas CIB.

Levente Szabados

Visiting Professor in Data Science, Lecturer at the Frankfurt School of Management & Finance.

Murielle Thibierge-Batude

Cybersecurity Expert Professor, Entrepreneur and Cybersecurity Expert at THIBIERGE & COMPANIES.

Dr. Alberto Todeschini

Visiting Professor in Artificial Intelligence, Professor and course lead in AI at UC Berkeley.

Stéphane Urena

Expert Professor in Data Science, Lead Data Scientist at Chronopost.

Boris Yepmo

Expert Professor in Data Science and Python, CEO Data Tryb.

ALBERTO TODESCHINI

Visiting Professor in Artificial Intelligence

"Numerous technological and economic revolutions have followed one another: the Stone Age and various ages of metals, agriculture, industrialization, etc. And yet, the current AI revolution is distinguished by its speed and ubiquity. No human enterprise will be spared by AI. France has one of the best education systems in the world for mathematics, engineering and statistics, which are the cornerstones of AI. It houses also many of the world's most successful companies.

aivancity's vision, which combines theoretical rigor and precision with practical applications and with agile product development methodologies, is ideally positioned to capitalize on the coming revolution"

DR. VALÉRIE MORIGNAT

Associate Professor in AI Strategy & Design

"My professional activities have led me to collaborate on several continents with Fortune 100 companies and advise government agencies. Beyond my expertise in AI and Business Strategy (MIT Sloan) and Machine Learning (MIT), I have led projects in Virtual and Augmented Reality design in sectors such as Healthcare, Biotechnology, and Management. I chose to put 20 years of professional experience at the service of aivancity because the school is driven by an innovative vision, centered on the inclusion of human diversity and interdisciplinary knowledge.

AI is a human project that aivancity explores in its multidimensionality through the cross-fertilization of technical engineering, business management, responsible design, and intelligence technologies' ethics. I am convinced that aivancity will stand out in history for generating the professional expertise required to deploy responsible and beneficial AI."

AN INTELLECTUAL PRODUCTION PROVIDING OUR PROGRAMS WITH A SOURCE OF IMPACT AND EVOLUTION

Since we are convinced that intellectual production (academic research, applied research, studies...) contributes to the orientation of the knowledge societies in the making, while permanently contributing to the evolution of our teaching programs and the development of responsible practices of Artificial Intelligence in companies and society, aivancity has launched various initiatives to provide a scientific and critical reading of AI practices:

Design of intelligent, sustainable, autonomous and low energy consumption connected systems:

A research project within the framework of Hugo Hadjur's PhD thesis. He is assistant professor at aivancity, under the co-supervision of Doreid Ammar, Professor and Academic Director at aivancity and Laurent Lefèvre, Professor and Permanent Researcher atINRIA/ENS LYON.

A research program on AI Ethics:

Ysens de France, Associate Professor at aivancity, studies the impact of the development of so-called intelligent technologies in security and defense. He is also involved in reflections on the emergence of AI in society. His research work contributes to building an efficient legal framework for the development & use of these technologies. Emmanuel Goffi, also an associate professor at aivancity, conducts work in applied ethics in various fields. His reflections include the ethics of international relations, focusing on the use of autonomous combat systems in contemporary conflicts. He is currently working on the ethical evaluation of new technologies and more specifically on the various current and future uses of artificial intelligence (AI). The aivancity Observatory of Responsible Practices in Artificial Intelligence aivancity School for Technology, Business & Society Paris-Cachan, in partnership with Viavoice and the GCF, is setting up a tool to monitor the adoption of AI and its ethical implications, as well as the measure of the transformation of AI-related ecosystem in business and society.

Research collaborations:
with EPF Ecole d'Ingénieur.e.s and Arts et Métiers

Ethics and Artificial Intelligence

Artificial intelligence is not exempt from ethical questioning. Like all technologies, it gives rise to all kinds of fantasies, hopes and worries. While it can be the promise of a life made easier by connected objects, of a longer life relieved of various forms of suffering, of increased productivity benefiting humanity or of better control of risks, whether confrontational, sanitary or even financial, it can also pose an existential threat to human beings, a potential path to a new world war, a threat to our fundamental freedoms, an alienating and uncontrollable technology in the long term.

Nevertheless, it has become an object of international relations, considered an indispensable factor of power. The political stakes it covers lead to choices whose ethical acceptability is continually being questioned. Can personal data be marketed? Should we equip combat robots with them? Is it acceptable to reproduce the human brain? Can we play the game of demigods? What is our responsibility towards future generations?

What is ethics?

Yet, on closer inspection, few people know what ethics is. Under that term, each of us has our own insights, our own expectations and our own perception of a word that is now so overused. Ethics – a field of philosophy aimed at evaluating the acceptable and unacceptable, right and wrong – is a subject that requires basic knowledge of the different approaches it covers. In a globalized world with diverse cultures that intersect and often clash, ethics has become a means of communication, a common language that promotes collaboration.

It therefore requires knowledge that goes beyond cultural a priori or limited perspectives. Doing ethics today means mastering the bases of the three major continental approaches, namely virtue ethics, deontology and consequentialism, but it also means being able to be open to other approaches based on different traditions, beliefs, histories and different types of wisdom. Therefore, no one can understand the relationship to technology in China by approaching it through an exclusively Western prism and

EMMANUEL GOFFI

Associate Professor in AI Ethics at aivancity.

Director of the Ethics & Artificial Intelligence Observatory of the Sapiens Institute

concealing its Confucian foundation. Nor can one exchange effectively with the Asian continent, or with Africa or the Middle East, without knowing the ethical springs on which the thoughts of the people who live there are based, without being open to difference.

Ethics is not law, it is not "mere common sense" and it is not politics. As a subject in its own right, it requires knowledge and methods. It requires reflection beyond our particular convictions. It calls for in-depth and global reflection on «vivre ensemble", a kind of living together that is no longer limited to a national community, but transcends the arbitrary divisions of borders or socio-cultural categories.

The future of ethics in the field of AI

Ethics and artificial intelligence are complex fields. Their interplay accentuates this complexity.

The race for AI that is being played out today on the international scene will lead to decisions, by private and public stakeholders, whose acceptability will be questionable at the very least.

Globalization adds a further degree of complexity by imposing collaboration between often very different cultures, between very different ethics. Our ability to understand, listen, mobilize our knowledge to tolerate these differences and use them effectively will safeguard constructive exchanges on our societies' future.

Ethics applied to AI is a societal issue that therefore transcends borders. It is being faced with different perspectives, it seeks to regulate diverse practices and to iron out often conflicting interests. It is a challenge that will continue to intensify and that can only be taken up by those who understand its nuances and subtleties and are capable of grasping its diversity.

Accordingly, ethics applied to AI is a promise made to those concerned about potential abuses in its use. It warrants a reflective approach that represents a safeguard, admittedly imperfect, but indispensable for all that.

Ethics as a societal issue

Ethics of finance, the environment, politics, medicine, war, research ethics: these are just a few of the many fields of application of a subject that has slowly invaded our everyday lives. Ethics is now at the heart of both private and public discourse, used and over-used mainly by non-specialists who benefit from excessive media coverage, which has helped make this field of philosophy a linguistic buzzword.

As we know, our societies are constantly striving for meaning. Concerned about a world whose complexity is overwhelming us, we are in this word seeking hope for a better future, for a reason to feel confident and thus to reduce the complexity of the world by limiting the need for knowledge.

Ethics is much more than just a branch of philosophy. It is a societal issue, the promise of a better future, the guarantee of peaceful social relations and assurance of predictable risk control. It has become a reassuring mediator, a communication tool aimed at embellishing the ugly, at disguising a disturbing reality in order to present it in an appealing light: a "cosm-ethics".

Faced with the inertia of law and the difficulty of adapting it in real time to the rapid changes in the world, we turn to ethics to standardize our behavior. Flexible and easy to handle, ethics speaks to everyone and often compensates for the weakness or lack of legal standards. Malleable, it is used in all areas of human activity and presented as a panacea, a miracle cure for a particular form of deregulation brought about by globalization.

To be constructive, ethics applied to AI must relate to the real world, to everyday problems. It requires fundamental knowledge, often fascinating, permitting a rigorous reflection on the stakes of AI development and use. It must be approached like all other academic subjects: with rigor. aivancity has therefore naturally chosen to focus on the issue of training in ethics applied to artificial intelligence: providing reliable tools to effectively explore tomorrow's challenges.

YEAR OF THE LAUNCH

AND ALREADY PRESTIGIOUS STRATEGIC ALLIANCES AND PARTNERSHIPS

aivancity School for Technology, Business & Society Paris-Cachan is committed to forging long-lasting, in-depth and mutually fruitful links with academic and socio-economic players, but also to constantly adapting its teaching to changes in the job market.

From its launch on, aivancity can count on a network of institutional partners, Academics and companies in France and internationally to enrich the learning experience of our future students and participants, allowing them to open new perspectives and further develop their networks.

↘ Institutional partner

Nestled in the heart of the Scientific Valley of the Bièvre, in the Val-de-Marne, and located in the Greater Paris metropolis, Cachan can boast numerous cultural facilities and is characterized by its higher education and research hub.

Hélène de Comarmond, Mayor of Cachan.

"A partnership with the City, its services and facilities, and with the associative actors will be an interesting way to anchor the school within the territory.

Students and teachers from higher education institutions are an asset for Cachan and aivancity's presence will strengthen this dynamic".

↘ Institutional partner

Choose Paris Region is the promotion and international attractiveness agency for the Ile-de-France region. It works in partnership with all the players in the Ile-de-France region to offer to international companies a tailor-made support service. Choose Paris Region is a catalyst for business and innovation that accompanies international companies in their development in Ile-de-France. The agency combines its market expertise and its network to help international companies build technology partnerships, to draw up their development plan in the Paris region, then to implement their local establishment.

With its team of 80 employees in Europe, the United States and China, the agency supports a thousand international companies every year seeking to accelerate their development in Europe's leading region, helping to make the Paris Region one of the world's largest regions in terms of economic activity and innovation.

↘ Institutional partner

Syntec Numérique is the professional trade union of digital service companies (ESN), software publishers and technology consulting firms, representing more than 2000 member companies that generate 80% of the turnover of the digital sector in France (30 large groups, 120 ETIs, 1000 SMEs and 800 start-ups and VSEs). It contributes to the promotion and growth of digital technology through the development of the digital economy and its uses, the support and development of new markets, support for employment, training, services to members and the defense of the profession's interests.

The CCI Val-de-Marne is involved, on a daily basis, in the development of the 94,000 companies in the département (county). To do this, it mobilizes strong and diversified skills. With great on-hand field experience, its advisers, economists, statisticians and legal experts inform, advise and support business creators, traders and managers.

↘ Major Academic Partner

Since 1925, the EPF - School of Engineering (formerly the Women's École Poytechnique) has been training innovative, responsible and international generalist engineers. Its 2,000 students (35% of whom are girls) – in Sceaux, Troyes and Montpellier – follow a poly-technical education that enables them to acquire excellent scientific and technical skills and to develop versatility and adaptability, thereby opening the doors to a wide range of business sectors.

The strategic alliance between aivancity and the EPF, which moved to Cachan in 2021, provides for many areas of collaboration including the EPF's representation by its director on the aivancity Board, the pooling of resources and educational spaces, a double honors degree, joint research programs and projects, joint corporate events, a joint Industry 4.0 incubator project, etc.

Jean-Michel Nicolle, Director of the EPF

"The partnership with aivancity is self-evident: on a personal level, because of the relationship of trust established over several years with the founder of this visionary project, Tawhid Chtioui, an innovative entrepreneur in higher education.

For our institutions, by associating an engineering school which has a very high level of recognition due to its remarkable identity, the quality of its training and diplomas, which cover a wide economic and industrial field and a real educational, both disruptive and visionary start-up, resolutely committed to taking up the challenge of artificial intelligence training. The alliance aims to create original synergies between partners, in particular by multiplying hybrid activities (for example around the transformation of 4.0 industry)."

↘ Major academic partner

The University of California at Berkeley is the first campus of the University of California and is one of the most selective and prestigious universities in the world.

The partnership agreement with UC Berkeley will allow our Grande École Program students to immerse themselves for a month in Silicon Valley, allowing them to get involved in one of the world's most powerful and innovative Artificial Intelligence ecosystems and broaden their academic, professional and cultural horizons. At the end of this learning trip, an "Artificial Intelligence Product Engineering" certificate will be delivered by UC Berkeley.

↘ Major Academic Partner

Arts et Métiers is a major French technological establishment with 8 campuses and 3 institutes.

Arts et Métiers' main mission is the training of engineers and managers in industry and research. Every year it trains more than 6,000 students from Bac+3 to Bac+8. With its training programs, its 15 laboratories and its research partnerships, Arts et Métiers is a socio-economic actor at the service of the territories.

The partnership agreement with Arts et Métiers provides for many areas of collaboration including: representation of the establishment by its president on the aivancity Board, the exchange of good practices, research and industrial partnerships and international cooperation.

Laurent Champaney, Director (Chairman) of Arts et Métiers

"aivancity is a novelty in the landscape of higher education in artificial intelligence by offering a very transverse vision of the field: not only technical, but also Business and Ethics. The partnership with Arts et Métiers demonstrates our desire to diversify and open up to these new fields of AI and Data. It will be a matter of working together in a project logic, in the framework of a responsible vision, sensitive to societal issues. This approach is at the heart of the values shared by Arts et Métiers and aivancity".

INTERNATIONAL THINK TANKS

↘ International Think Tank

Beyond the Horizon International Strategic Studies Group" is a non-partisan, independent, non-profit think tank based in Belgium. It is recognized as a center of excellence for professional training and skills development, particularly in the field of Artificial Intelligence. aivancity and Beyond The Horizon collaborate on European projects but also co-construct training programs and develop common content for online courses. The partnership also provides for the exchange of professors and the publication of joint research articles and blogs related to Artificial Intelligence.

↘ International Think Tank

We the Humans is a think tank based in Spain that promotes and fosters the social debate on the use and proper development of AI. It supports organizations in the development and adoption of ethics in artificial intelligence. The partnership provides for extensive international collaboration to develop an AI of trust and responsibility.

↘ Technological collaboration

A key player in the digital, Internet and artificial intelligence sectors, Microsoft has been present in France for 32 years.

aivancity and Microsoft in France collaborate on several levels: sharing Artificial Intelligence content and integrating Microsoft Azure certifications into aivancity's programs, making Microsoft equipment and applications available to all teachers and learners in the school, designing virtual machines for pedagogy and for the work of the AI Clinic and representation on the aivancity Board.

↘ Technology Partner

Futurous organizes sports and e-sports competitions to raise awareness, educate and inspire communities to breakthrough technologies: Information Technology, Artificial Intelligence, Mobility Technologies, Robotics and Exoskeletons, Virtual Reality and Augmented Reality. Futurous analyzes and demonstrates the place of technology in sports, the evolution of links between the athlete, the competition space and spectators.

The partnership between aivancity and Futurous focuses on various subjects including the implementation of a continuing education program in the field of Sport and AI, the development of common initiatives, in particular in the field of research, analysis and training.

↘ Technology partner

↘ Technology partner

LinkedIn Learning is LinkedIn's online learning platform with more than 16,000 courses delivered by experts from around the world and a regularly updated library.

In order to help students develop new skills, aivancity offers access to tailor-made courses based on LinkedIn Learning content, in addition to its range of face-to-face and distance learning courses, within the framework of a long-term partnership concluded with LinkedIn.

Samir Beni Nouh, Education Lead - LinkedIn Learning

"At aivancity, AI is a great way to create value. We are happy to collaborate with aivancity to help in developing this key competency for students".

↘ Event partner

CORP is specialized in the creation and organization of B2B congresses and trade shows in the field of new technologies, including Big Data & AI Paris and Toronto, Voice Tech Paris, Cyber Security Toronto, Cloud expo Toronto...

Corp Agency and aivancity collaborate on the annual event, including BIG DATA & AI PARIS of Corp Agency to share their expertise and networks in the area of Big Data and Artificial Intelligence and to promote an AI based on trust and responsibility as well as access to education, while at the same time developing common initiatives.

↘ Technology partner

Blockchain Certified Data has identified that there is no standard on the market allowing the certification of academic or training data in a simple, secure and perennial way. It has therefore developed a unique technology, patented in the United States, allowing to certify data and to give access to a conclusive certificate in one click.

Thanks to this partnership with BCdiploma, each graduate has a unique Internet link that allows him or her to promote the authenticity of their diploma to the people whom they share this link with (employer, recruiter, etc.). They benefit from an innovative, secure, durable and tamper-proof solution for the delivery of their diploma. Updating the diploma© is an integral part of the solution (see page 21).

Banking partners

aivancity is supported in its development by three prestigious players in the financial sector, all confident in the school's quality and the very innovative and pioneering character of its positioning. They show they trust the school and its leaders by supporting the financing of their investments, by providing support in financing our students' studies, by collaborating on topics related to Artificial Intelligence and data in the banking sector and being represented on the aivancity Board.

The guarantee of the diploma lifetime update©,

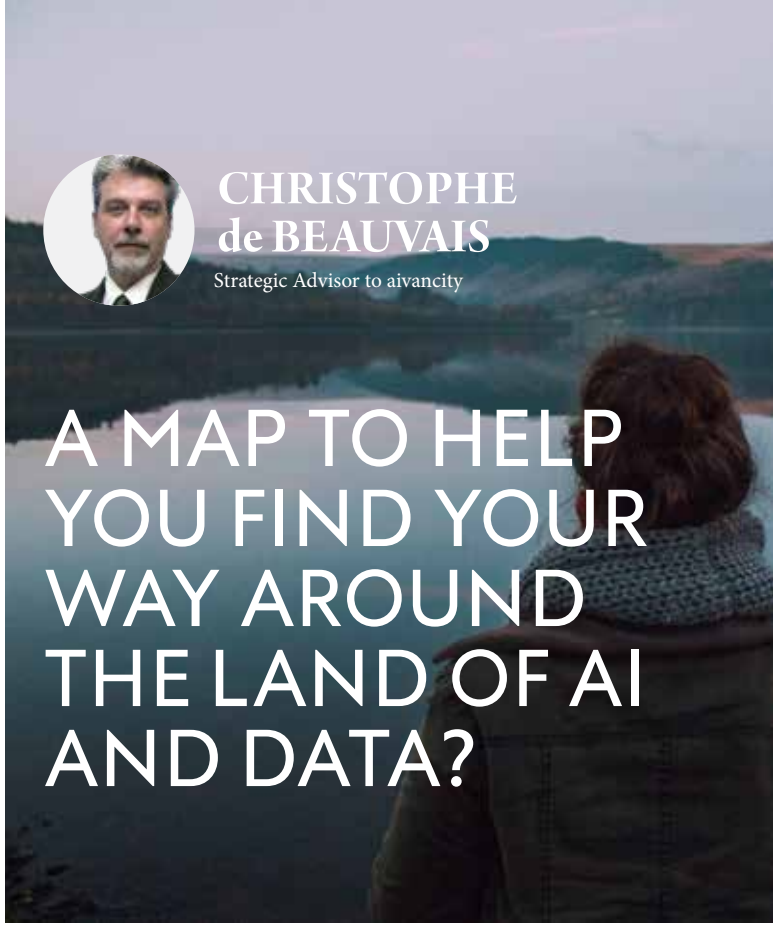
is a unique concept in the world, invented and patented by aivancity.

aivancity is committed to offering its graduates a set of services enabling them to adapt their skills to the evolution of the fields covered by artificial intelligence and data science. This diploma lifetime update guarantee contributes to the missions inherent to the school's values: accompanying graduates throughout their professional career and strengthening their professional integration.

Graduates will be able to return to the school to take courses and continue to have access to many resources: online courses, media library, and more. Any update will be validated by an update of the diploma, certifying the graduate's "updated" skills and/or knowledge, together with their update dates. Graduates will also be able to obtain the updating of their diplomas by means of a partial VAE (validation of learning achievements).

The new updated diploma will be digitized, available, easily accessible and forgery-proof thanks to the blockchain. The technical concept was developed in partnership with BCdiploma.

Contact:
Tel: +33 1 41 22 13 82
Mail: contact@aivancity.ai
www.aivancity.ai



CHRISTOPHE
de BEAUVAIS
Strategic Advisor to aivancity

THE AI AND DATA JOBS

A MAP TO HELP YOU FIND YOUR WAY AROUND THE LAND OF AI AND DATA?

Preamble

The AI and data revolution is on the move. It is no longer at our doorstep, it has crossed the threshold and started to take hold in our living rooms. So the issue of the businesses that are accompanying it, and that will accompany tomorrow's world, is essential: what are the jobs offered by AI and data? How to prepare for them?

Not that old story again! Granted. Yet now, it only takes a few clicks to get a wealth of answers. You will hear abundantly about data scientists, data engineers, data managers, data scientists, data analysts, machine learning engineers, or even data Architects.

More commonly discussed in English, artificial intelligence (AI) and data give the feeling that they are the sole preserve of specialists.

But then, what about questions that seem to be coming from all sides: how to develop a business approach to AI if it is only driven by a technical approach? How to think about AI's organizational consequences in companies if it is a matter for sole specialists? How to convince those who are "far from AI" that it generates benefits, not only anxieties? How to reconcile business units and professions with research and development (R&D) or with information systems (IS) managers? And more generally: how can we democratize its use and learn new skills if it is agreed in advance that we will never ever have a clue about it?

With the list of previous professions as a starting point, the answers seem uncertain. Three specialists in AI and data, **David Cressey, Frédéric Oru and Boris Yepmo,** have agreed to answer our questions related to AI and data business research.

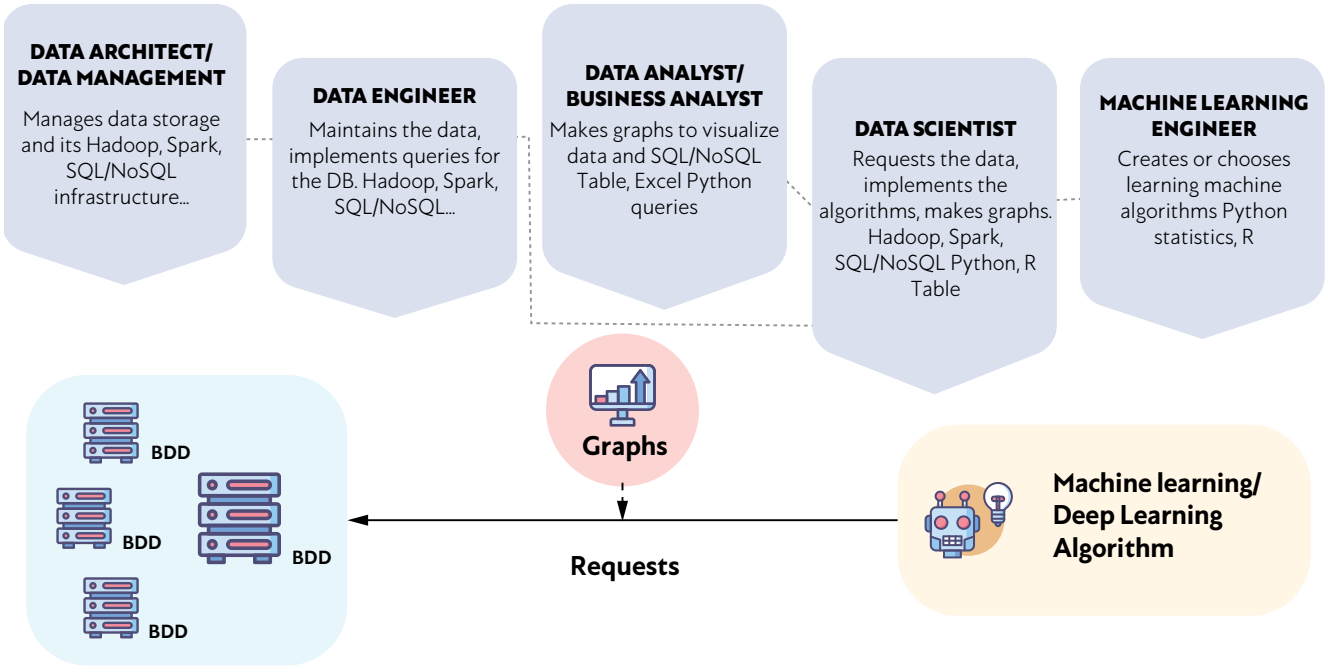
"Technical" point of view:

Technique is everything!

This statement sounds like an obvious one. In France, apart from engineering schools, specialized schools and high-level master's degrees, there's no way to get ahead. And it's quite true: understanding machine learning, gradient regression, neural networks convolution or the curse of dimensionality at the very least, presupposes that one understands the words used, that one knows what "learning", "gradient", "convolution", "neurons", "dimensionality" mean...

No salvation in the land of AI and data without a solid mathematical and computer science foundation. Don't AI experts all come from the same schools? From the same demanding training courses? Through the same study paths?

We even have a map[1] to navigate the countries of AI and Data professions:



Our 3 specialists were quick to react

Boris Yepmo
is the first to react, weighing his words:

"This breakdown is very specific to the Tech. For a company that is more business-oriented, the functions will not be the same! Profiles have changed: you need very advanced knowledge in both fields, Tech and business."

David Cressey
is more didactic:

"I don't think this map is wrong. Nevertheless, as the field is still quite immature in non-tech companies, I'd rather talk about an ecosystem of skills that evolves within ta threefold field: data, business, IT. The roles that are mentioned in this diagram are a subset of what is found in organizations today, but they are likely to evolve rapidly. However, to conclude, I am not sure I understand the purpose of this map and I recommend not to use it as it stands!"

Frédéric Oru
agrees:

"that map only addresses the 'technical' profiles of AI and data. It would be necessary to fill in the picture with the IT operating profiles of the ISD (management of servers, connections, etc.), access rights to APIs, IS integration ...) and the business profiles that work with the data analysts and data scientists (but these are "frontier" jobs that are not yet fully mapped) and jobs in the making, such as AI auditor, ethics manager, etc... "

So another map of professions, another landscape do exist indeed! So the technical specialists in AI and data were missing something, but what was it? We had to turn the question around and no longer ask what we needed from a "technical" point of view for an AI project, but what we needed from a "business" point of view for the same project!

1 Lambert Rosique http://penseeartificielle.fr/metiers-intelligence-artificielle-data-science/

Business point of view:

Technique is not everything!

"But then, dare I ask, from a business point of view, where are AI and Data specialists found wanting?"

Boris
goes straight to the point:

"The ability to imagine what the projects that will be implemented will be used for. What is created must be suited to market needs. It is necessary to have a vision of the market before starting to produce, so as not to repeat unsuitable inventions such as the Smartphone-connected mug.

Similarly, for the autonomous vehicle, a major innovation in the transportation sector: its development is linked to local or governmental institutions that will have to (re)think the ecosystem these vehicles will run in".

David
always the didactic one:

"It's the link between these three skills (business, data, IT) that enables us to create value (ROI, operational efficiency...) within companies. Even if there is no pre-established model, it is interesting to observe that one organizational scheme is becoming more and more widespread: a decentralized data science sector. Indeed, it is believed that a data scientist must be as close as possible to the business in order to become an SME (Subject Matter Expert). Without this skill, it is difficult for him/her to provide the level of value expected by the profession.

We've got to keep in mind that data science and AI are only of interest to companies if they enable them to leverage business use cases with the resultant ROI, operational efficiency, customer experience or the development of new business models. An intimate knowledge of the sector, the issues and strategic priorities of the industry and the company are essential assets for data practitioners.

Frédéric
completes:

"What I notice is that AI and data specialists often lack knowledge about the businesses they serve, and are not always very good at motivating operational staff to work with them.

This is a fundamental problem: to make good AI, you don't just need data, you need quality data, that is representative of reality (as a statistical sample), and whose origin and significance are well-understood ...

However, those who produce the data know where it comes from and what it means: they are the people in the trade, the operational people. Data engineers can't put themselves entirely in their shoes, but they must have a minimum understanding of the business, and an ability to talk to people in the business."

And he goes on saying:

"But I also have a second point, which concerns the awareness of the impact of his action. Engineers are generally passionate about their technologies but are not much aware of the social or environmental consequences of what they produce".

Yet AI can have significant effects on jobs, on climate (owing to its energy consumption), on users' behavior (filter bubble in social networks for example) ... It is necessary to give a more important part to the "humanities" in AI and data specialists training curricula, and I will personally push for philosophy. When you code an AI, you don't really code a program anymore, you code an intention, an objective. For example: the objective "to hold the reader's attention" can lead AI to propose conspiracy contents – false obviously, but terribly attractive. Is this really what we want?"

The Villani report is worth reading again: it was one of the first to state, "[AI ethics] Teaching is almost absent from engineering school curricula or university computer science courses, even though the volume and complexity of the ethical issues that these future graduates will be confronted with is constantly growing".

Without basic technical knowledge:

what future in AI & Data?

While the business point of view is essential, "how can you train for these new professions when you don't have a basis in mathematics or computer science?"

Boris
continues:

"It's entirely possible if the trainer adapts. In order for a novice to acquire the (indispensable) basics of mathematics, he must be immersed in concrete daily life cases".

Then Frédéric
makes a commitment:

"Without a computer or mathematical base, we can still be trained to understand how AI works. It's very important to understand that it's not magic and that it can't do everything.

If you have a basic knowledge of computer science (and more specifically algorithmic programming), it is quite easy to learn how to train AIs that have well-known models, typically neural networks on images. But for a professional use, the person must understand what they are doing. This requires some basic statistics, but it does not require a PhD in mathematics.

Finally, if you have a basic knowledge of mathematics but little computer science, you understand everything but you don't know how to do anything. There are a lot of tools to master (Linux, Python, data science libraries, a bit of cloud computing, big data tools, versioning tools) ... taken in isolation it's not complicated but it's still a lot of material to remember".

David
is anxious to come back to the company, and points out:

"It is very useful to quickly bring on board, from the very beginning of the project, people capable of building robust business cases in order to estimate the potential gains related to an AI project. These profiles must have an intimate knowledge of the company's business, but also of the notions of corporate finance. A layer of knowledge in tech / AI will be necessary for them but it can be acquired quickly".

New jobs?

What new jobs?

To conclude, before proposing a new map, what about the new professions related to matters of trust and ethics? What employability? AI and Law, AI and Culture, AI and Health, AI and journalism, AI and Sport, AI and customer relations?

Boris
concludes:

"All fields are and will be impacted: AI already prescribes our cultural tastes, AI targets journalistic information ... It has clearly penetrated the cultural and information sectors. AI and algorithms are massively used to recommend us content. Also, if the consulting mode is already used in these fields, it should be clearly confirmed in real hiring opportunities within 10 years..."

David
is kind enough to continue:

"Ethics is at the heart of the concerns of companies that plan to grow thanks to AI. This is especially true when developing AI tools that interact or have a direct impact on a company's customers (credit granting, image recognition, scoring marketing...). As far as law, culture and journalism are concerned, I believe that no field can claim to be insensitive to AI developments. It is up to specialists in these fields to embrace new technologies to shape them in a way that maximizes the benefit to society as a whole rather than letting a few technological giants dictate the future of their specialties".

Frédéric
concludes:

"I was talking about it a little earlier: these jobs are in the making. My feeling is that there will be more and more market demand, if only for regulatory reasons. It would still be difficult, in my opinion, to define a training path today that produces specialized "AI and Law", "AI and Culture", "AI and Journalism", "AI and Sport" profiles, etc. On the other hand, it is clearly possible to create dual curricula in connection with law schools, art schools, schools of journalism, to bring them a sound AI culture... and why not invent the foundations of their future jobs together with them?"

Epilogue

Taking up their words, we can imagine the following table:

		Data		
		Handling data (and algorithms)	Understand data	Assess data
Skills	Tech			
	Trades			
	Ethics			

Core competencies Close competencies Distant competencies

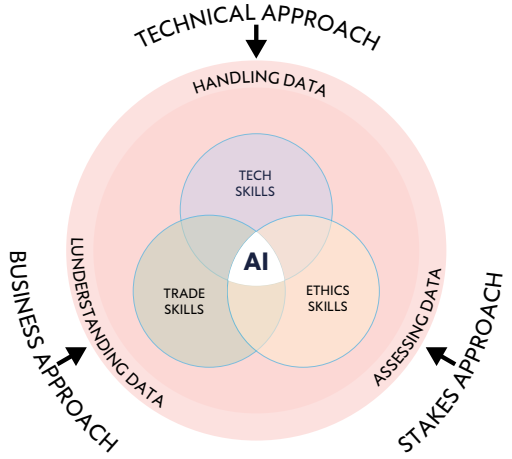
Handling data – in the mathematical sense – and algorithms is the core competence of technical professions.

Understanding data – in the sense of "knowing where it comes from and what it means", to paraphrase Frédéric – is the core skill of technical professions.

Finally, evaluating data – in the sense of assessing the stakes and impacts from a societal and regulatory perspective – is the core business of the DPO or of the legal operations officer, or even of the "legal operations officer", or then again of the SRC manager.

With this short diagram, the AI professions could be distributed according to a triptych of skills related to the type of data use that was sought. While a "data scientist" 's core competence will never be data assessment – from the point of view of its societal and regulatory issues – he or she cannot ignore this area.

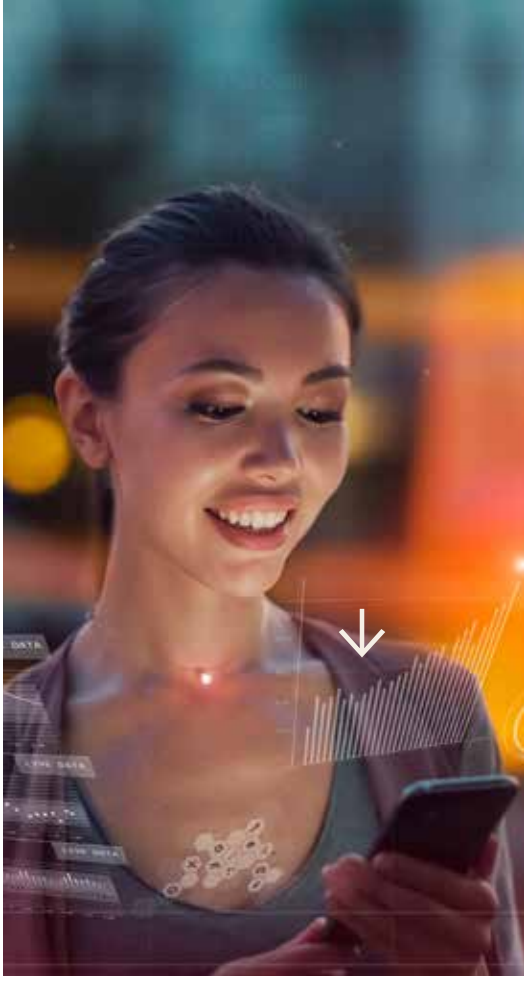
Finally, let's propose another map, that of approaches for the success of an AI project:



What would our three specialists think? Makes you wonder....

A PROGRAM OFFER

to respond to the changes in jobs and skills related to Artificial Intelligence and Data Science.



AI and the emergence of Big Data are causing profound changes in the way we think about jobs and skills, offering a wide range of employment opportunities for highly qualified graduates. Competition for AI and data specialists is raging on the job market in France and around the world, and it's only just beginning.

"Worldwide, there are only an estimated 300,000 AI researchers and practitioners, while demand is in the millions, according to a December 2017 survey by the Tencent Research Institute. For loosening the vise, MP Cédric Villani proposes in his report, published in March 2018, to triple the number of people trained in AI in three years, notably by extending the field of talent to the bac (senior year exam) +2 and +3". (JDN, X. Biseul, April 2019)

Implementing AI solutions in organizations is not just a technical issue; it requires a detailed knowledge of business management issues and the whole spectrum of issues related to feasibility, validity, acceptability, trust and accountability.

As a place for initial education (with post-secondary school to PhD programs), as well as a place for exchange and meetings between the academic and socio-economic worlds, aivancity is also a place for executive education.

This continuing education offer is broad and extensive: it concerns engineers, eager to understand AI and data science developments, but also less technical profiles, so long as they are aware of the importance of the field for their professional development.

This is how our programs DNA triptych (AI, Management, Ethics) is matched by another triptych, made up of the following three poles: initial education, a place of exchange, executive education.

	INITIAL TRAINING	EXECUTIVE EDUCATION	PLACE OF EXCHANGE BETWEEN
	STUDENTS	EMPLOYEES	OF ALL TYPES AND AGES
PERSONALIZED PROGRAMS	**ONLINE COMPLEMENTS FOR ALL STUDENTS:** blackboard aivancity and partnership with LinkedIn learning	**CUSTOMIZED PROGRAMS AIVANCITYX MOOCS:** **AIVANCITYX ONLINE CERTIFICATES:** AI Strategy, Business Data Science, Machine learning for business, Maths for AI, Societal issues in AI... **SHORT PROGRAMS**	**AIVANCITYX MOOCS:** AI Ethics, Applications of AI in E-Commerce, AI by design...)
SKILLS-BASED PROGRAMS	**SUMMER SCHOOL** Artificial Intelligence & Big Data: technologies, practices & challenges (for students) Understanding Artificial Intelligence and massive data (for high school students)	**PROFESSIONAL CERTIFICATIONS:** AI and Big Data for CIO/ CTO AI and Big Data for Marketing AI and Data Science for Managers	**CONFERENCE CYCLE AI & SOCIETY**
JOBS-BASED PROGRAMS	**MSC AI & DATA SCIENCE FOR BUSINESS** **BSC APPLIED ARTIFICIAL INTELLIGENCE** **MSC MACHINE LEARNING FOR BUSINESS INTELLIGENCE**	**PART-TIME MSC MACHINE LEARNING FOR BUSINESS INTELLIGENCE PROFESSIONAL CERTIFICATIONS:** Data Science and Modelling Neural Networks and Deep Learning	**MICRO-CERTIFICATION:** "Artificial intelligence: prospects and challenges for 2020". as part of the Big Data & AI PARIS 2020 trade show

GRANDE ÉCOLE PROGRAM

Unique in its positioning and approach, the aivancity's "Grande Ecole" Program aims to prepare future AIgineers®[1] capable of meeting the many challenges facing the economy and society in terms of exploiting the potential of data and artificial intelligence:

- Graduates capable of developing computer programs to accelerate business performance and ensure the transition to a 4.0 industry, but also to work for the progress of humanity in all areas, while ensuring that ethical rules evolve in line with technical and societal developments.
- Graduates capable of designing and developing the intelligent systems that contribute to companies' progress and the development of tomorrow's Society while integrating the new challenges related to cobotics (Collaborative Robotics or Man/Machine collaboration).

Recruiters are increasingly looking for young talent capable of leading innovation projects and supporting the transformation of their organizations, by mobilizing technological and scientific knowledge integrated with business or professional management logics (strategy, marketing, customer relations, operations management, finance...).

CURRICULUM IN 2 OR 3 YEARS AFTER SECONDARY SCHOOL+2 OR +3 (ENGLISH SPEAKING)

↓ Format

- 2 or 3 years of studies, including the last year in a work-study program
- Two learning trips of one month each, internationally, at the end of the 1st and 2nd year.
- Lifetime guarantee to update the diploma, including 10 years free of charge (See page 30).
- The AI Clinic: a pedagogical innovation at students' and companies' service (See page 24)

↓ Diplomas

- a Master of Science degree "Artificial Intelligence & Data Science for Business".
- a State-level professional certification registered with the RNCP (National Directory of Professional Certifications) at level 7 (equivalent to Bac+5): "Artificial Intelligence Project leader" (File in progress with France Compétences)
- an "AI Product Engineering" certificate issued by the University of Berkeley, for students opting for the learning trip to California at the end of the of the program's second year.
- The following professional certifications whose preparation is integrated into the program:

Year 1	DP-200	Implementing an Azure Data Solution - Microsoft
Year 2	DP-201	Designing an Azure Data Solution and AI-900: Microsoft Azure AI Fundamentals or AWS Certified Cloud Practitioner or Associate Cloud Engineer
Year 3	AI-100	Designing and Implementing an Azure AI Solution - Microsoft

[1] The term AIgineer® is a trademark registered with the INPI by aivancity School for Technology, Business & Society. All rights reserved.

Learning Objectives

As Nicolaus Henke, Jordan Levine, and Paul McInerney point out in the Harvard Business Review (2019): "[...], companies have widened their aperture, recognizing that **success with AI and analytics requires not just data scientists but also entire cross-functional, analytics translator:** The new must-have role agile teams that include data engineers, data architects, data-visualization experts, and – perhaps most importantly – translators. **Translators must be experts in both their industry and their company** to effectively identify the value of AI and analytics in the business context".

These multiple skills are an integral part of the program and are reflected in the following objectives:

- To understand the company and its organization, and to situate it in its (institutional, economic, legal, financial, social and societal) environments
- Identify and define the stakes and impacts of artificial intelligence on different fields of use.
- Analyze and process data
- Implement an automated learning solution (machine and deep learning)
- Leading the IT development of an artificial intelligence project
- Valuing the results of the artificial intelligence project
- Manage an artificial intelligence and/or data science project
- Take into account the multiple impacts and challenges of AI on the environment, society and the individual, and develop a responsible approach concerned with the legal issues related to data but also bias, transparency, robustness and explainability issues.
- Address the company's issues in a global way by integrating marketing and customer relationship strategies, management tools, communication methods and human and managerial levers.
- Master two foreign languages in a professional situation and working in an international environment
- Develop the ability to understand disruptions and transformations, the sense of agile, open and collaborative innovation and the ability to lead an end-to-end creative process.
- Identify the business challenges in his or her field of specialization and have the soft skills attached to it.
- Adopt a responsible and ethical behavior and systematically integrate it in their professional decisions and activities.

These skills will enable our graduates to become key players in AI and data science projects in organizations.

Far from being confined to a single profession, **our commitment to employability** will be to provide them with the technical, business and ethical tools to enable them to evolve in a constantly changing world.

Opportunities and Career paths

With the advent of Artificial Intelligence and Big Data in our society, new, highly skilled jobs have emerged. These new professions, whatever the sector, can be organized along a continuum from data to algorithms and their implementation within companies.

The aivancity *Grande Ecole* program prepares students for the following professions:

- Artificial Intelligence Engineer, Artificial Intelligence Project Manager, Artificial Intelligence Project Director, Artificial Intelligence Expert, Artificial Intelligence Consultant
- Machine Learning Project Manager, Machine Learning Engineer
- Data scientist, Data engineer, Big Data consultant, Business Data analyst

Admission requirements

Admission to the *Grande École* Program is open to a variety of student profiles. The conditions stipulated below are indicative and set only a general framework that does not purport to take into account the completeness of individual cases.

Admission to Grande École Program first year, open to:

- Preparatory Studies for the Grandes Ecoles (CPGE) students (scientific and commercial),
- DUT graduates (all specialties),
- BTS graduates specialized in insurance, banking, management, sales, accounting, computer science, electronics, electrical engineering
- students with a validated post-secondary+2 level of study (120 ECTS credits) in the context of a diploma or certificate favorably validating two years of higher education in mathematics, statistics, computer science, engineering sciences, economics or management, issued by an official French or international higher education institution,
- Post-secondary+3 graduates (French Licence, Bachelor, RNCP level 6 or other international diploma admitted as equivalent by the Dean of aivancity) in fields that differ from those required for integration in the 2nd year and with a particular enthusiasm for mathematics and computer science.

Admission to Grande École Program 2nd year, open to:

- Graduates with a Bachelor's degree (or equivalent) in mathematics, statistics, computer science or engineering sciences,
- Graduates with a Bachelor's degree (or equivalent) in economics and/or management
- Holders of a Bachelor's degree (Bac+3 or Bac+4) from business or engineering schools
- Holders of another international diploma accepted as equivalent by the Dean of aivancity.

aivancity's Grande École Program has its own competitive entrance examination. All candidates take selection tests based on knowledge, skills and open-mindedness, including sensitivity to issues of ethics and responsibility.

Admission tests in 1st year	Admission tests in 2nd year	Durat.	Coeff
Assessment of the application file	Assessment of the application file		4
Mathematics and statistics written test	Mathematics and statistics written test	2h	3
Multiple choice English quiz (vocabulary, grammar, comprehension)	Technology & Business English quiz	45 mn	1
Choice of MCQ quiz: Computer Science or Economics and Sociology	Choice of MCQ quiz: Computer Science or Management	45 mn	2
One-on-one interview for motivation and general knowledge	One-on-one interview for motivation and general knowledge	30 mn	3
Group Interview: Responsibility and Ethics	Group Interview: Responsibility and Ethics	45 mn	2

Application fee: 120 €

Admissions tests are not so much based on technical knowledge than on candidates' logical, argumentation and analytical abilities, on their interpersonal skills, their competence and their interest in technological, ethical and social issues. The "mathematics and statistics" test in particular does not require advanced knowledge of mathematics. More details on the admission tests on our website **www.aivancity.ai.**

Cost of studies, financing and scholarships

- For admissions in the 1st year of the Grande École Program: **12,900€ / year**
- For admissions in the 2nd year of the Grande École Program: **14,900€ / year**
- The third year is offered as an apprenticeship or professionalization contract (study-work dual system) with tuition fees paid by the host company, or in a sandwich course abroad or in France.

These tuition fees are defined for year 2021/2022 and include all fees of study, including international learning trips as well as the guarantee to update the diploma for 10 years from the date of graduation.

They do not include international travel (airplane, transportation, accommodation and catering).

It is possible to be granted bank loans negotiated at preferential rates with aivancity partners, repayable after a grace period.

It is also possible to benefit from scholarships corresponding to 100% of the tuition fees, granted by the AIVANCITY Endowment Fund, in terms of social criteria and academic excellence.

Focus on the learning trip at the University of California Berkeley

aivancity School for Technology, Business & Society Paris-Cachan has signed a partnership with UC Berkeley to enable students of the Grande Ecole Program to live an exceptional immersive experience in the innovative and technological ecosystem of Silicon Valley. At the end of the second year, students leave for the United States as part of a three-week learning trip to UC Berkeley and a one-week free cultural immersion program that includes the writing of a fresh-eyes report.

The program, tailor-made for aivancity students, promotes a perfect coherence of the overall course within the school and develops new technical and international skills.

Students who successfully complete the learning trip program receive a certification from UC Berkeley: «Artificial Intelligence Product Engineering».

The University of California at Berkeley is the first University of California campus and is one of the most selective and prestigious universities in the world. It has 35,000 students, 14,000 employees and 1,800 tenured professors and boasts 104 Nobel Prizes, 45 MacArthur Prizes, 25 Turing Awards, 19 Oscars, 14 Pulitzer Prizes, 14 Fields Medals and 207 Olympic medals.

Find the objectives and content of the program on our website **www.aivancity.ai.**

SCHOOL FOR TECHNOLOGY, BUSINESS & SOCIETY

3 YEARS TO BECOME TOMORROW'S AIGINEERS®

Pedagogical integration seminar - Promo year dynamics, solidarity and responsibility

YEAR 1:
BUILD THE FUNDAMENTALS AND ANALYZE
580H of teaching + 120H of IA clinic

AI TECH
- Maths & statistics
- Coding for AI
- Practical Machine learning

Business Management
- Economy & Business law
- Finance
- Marketing
- Human resources management

AI, Ethics & Society
- AI History and Geopolitics
- The individual, the Enterprise and the State meet the challenges of AI
- Data Governance

Languages and Cultures
- English/French as a foreign language (FLE), Second foreign language (LV2), Mandarin

Projects & personal development
- AI Clinic, Career Coaching, Social media & E-reputation
- Internship: 2 to 3 months

aivancity Experience
- Associative, artistic and sports activities
- Cycle of conferences
- Citizen Mission
- International learning trip

2ND YEAR ADMISSIONS

Personalized online course with tutoring on Saturdays, accessible upon registration during the year. Refresher course according to academic background: Management Fundamentals or Math, stats, Data and Machine Learning fundamentals

YEAR 2:
DEEPEN AND DEVELOP
650H of teaching + 180H of IA clinic

TECH
- Practical Deep learning
- Big Data Analytics
- Cloud Computing
- Deployment of AI models

Business Management
- Management of digital systems
- Supply chain management, smart operations
- Business strategy and planning
- AI & Data science for Marketing

AI, Ethics & Society
- AI Robustness, explicability and bias
- Major transformations by AI
- Great issues raised by AI
- Languages and Cultures
- English/FLE, LV2, Mandarin

Projects & personal development
- AI Clinic, Career Coaching
- Internship: 2 to 3 months

aivancity Experience
- Associative, artistic and sports activities
- Cycle of conferences
- Citizen Mission
- Learning trip to UC Berkeley

YEAR 3:
HAVE A STRATEGIC VISION AND SPECIALIZE
Apprenticeship, 180H of common core + 120H of specialization, + 300H of AI clinic

Common Core Curriculum
- Cyber security, The Internet of Things, Data governance, Green AI, AI & decision making, Data-driven business models, The Future of AI, Responsible performance management...

Specializations
- AI and Health
- AI and Finance
- AI and Law
- AI and commerce
- AI and Industry
- AI and Entrepreneurship
- AI and Consulting

Languages and Cultures
- English/FLE, LV2, Mandarin

Projects & personal development
- AI Clinic, Career Coaching
- Report on the work-study assignment
- End of study project or thesis
- Alternate apprenticeship or internship: 12 months

aivancity Experience
- Cycle of conferences

Master of Science Artificial Intelligence & Data Science for Business
RNCP State certified Title, level 7 "AI Project Leader" – the dossier is being validated with *France compétences*
AI product Engineering **Certificate** from **UC Berkeley**
Several professional **certifications** with **Microsoft Azure, AWS or Google Cloud**

Bachelor of Science Applied Artificial Intelligence

3-YEAR POST-SECONDARY SCHOOL PROGRAM (FRENCH SPEAKING)

The democratization and industrialization of AI use cases increases the interest of companies for profiles trained in data processing, Machine Learning, Deep Learning, business issues and AI project deployment. The Bachelor of Science in Applied Artificial Intelligence of aivancity School for Technology, Business & Society Paris-Cachan meets this increasing demand by preparing for the job of Artificial Intelligence Developer.

These versatile profiles must know how to use existing tools (in machine learning or deep learning) and meet a real demand from companies (large companies but also, and increasingly, SMEs).

The skills targeted by this program are built around three blocks of «technical» skills centered on data, which will be acquired, stored and analyzed, and on the implementation of machine learning and deep learning algorithms, supported by a first block of skills, oriented towards the business world and project issues (upstream issues), and a second block oriented towards the deployment of the AI solution (downstream issues).

All of these skills enable the AI developer to play his role as a «technology broker», a «transmitter of knowledge», while understanding the company's challenges and therefore knowing how to adapt his/her knowledge of technology to the real needs of the organization.

Format

- 3 years of studies, including the last year in a work-study program
- An international learning trip during the 3rd year
- Lifetime guarantee to update the diploma, including 5 years free of charge (See page 30)
- The AI Clinic: a pedagogical innovation at the service of students and companies (Cf. page 24)

Diplomas

The program entitles students who have successfully completed their studies to obtain:

- a Bachelor of Science in "Applied Artificial Intelligence".
- a state-level professional certification registered with the RNCP (National Directory of Professional Certifications) at level 6 (equivalent to 3 years after secondary school): "Artificial Intelligence Developer" (File in progress with France compétences)
- the following professional certifications whose preparation is integrated into the program :

Year 1	70-779	Analyzing and Visualizing Data with Microsoft Excel
Year 2	DP-200	Implementing an Azure Data Solution - Microsoft
Year 3	98-381	Introduction to Programming Using Microsoft Python or AWS Certified Developer - Associate or Professional Cloud Developer

Next intakes:
September 2021 and February 2022

Learning Objectives

This program meets the competency framework, developed by the school, as part of the state-certified level 6 title «IA Developer» (in the process of obtaining it from France compétences):

Competency Set 1:

Mastering the business world and identification of the project issues

- Study of the company functioning in its environment
- Study of the company's digital system
- Identification of new practices, methods and uses in the field of AI related to the enterprise domains

Competency Set 2:

Data acquisition, storage and analysis

- Development of a database and data minig
- Pre-processing and analysis of structured and unstructured data from multiple sources
- Mathematical analysis and modeling

Competency Set 3:

Implementation of machine learning algorithmse

- Implementation and training of machine learning models
- Optimization and evaluation of machine learning models

Competency Set 4:

Implementation of deep learning algorithms

- Implementation and training of deep learning models
- Optimization and evaluation of deep learning models

Competency Set 5:

Deployment of an artificial intelligence development project

- Deployment of an AI development project
- Integration of legal constraints and ethical values
- Integration in a global project approach involving different stakeholders

Beyond these skills sets, the Bachelor's degree enables students to:

- Develop their command of 2 foreign languages in a professional situation
- Adopt accountable and ethical behavior and systematically integrate it into their professional decision-making and activities.
- Develop initiative and entrepreneurial spirit
- Learn from experiences, bounce back and question oneself for better anticipation and projection skills

Opportunities and career paths

The AI Developer is a specialist in the development of computer applications around AI and Data Science. According to the 2019 OPIIEC report, the role of AI developer is to develop IT solutions that can be used by specialists or non-specialists, including directly or indirectly Artificial Intelligence bricks while designing, testing and adapting applications integrating all or part of these technologies.

The professions associated with the Artificial Intelligence developer are listed under different names:

- Machine learning developer
- IA Development Project Manager
- AI Programmer
- Lead developer AI
- AI Programmer Analyst

Continuation of further studies

All students who have obtained an overall average of 12/20 or higher during the first two years of the Bachelor's degree are exempted from the entrance exam to the aivancity Grande École program (Master of Science in AI & Data Science for Business) and can directly enter the 2nd year of the program.

The other students may enter the second year of the Grande École Program through a competitive entrance examination.

If you plan to join the best Master's degree programs in France or abroad, the aivancity diploma will enable you to pursue other paths of excellence.

Admission requirements

Admission to the Bachelor program is open to a variety of student profiles. The conditions stipulated below are indicative and only set a general framework that does not claim to take into account individual cases comprehensively.

Admission to our Bachelor of Science is not possible directly in the 2nd or 3rd year.

Admissions are open to students holding a general baccalaureate; technological baccalaureate or any other international diploma accepted as equivalent by the dean of aivancity.

Access to the aivancity Bachelor's degree is based on a competitive entrance examination OUT OF PARCOURSUP (the French platform for entrance to universities). All candidates will take selection tests based on knowledge, but also on skills and open-mindedness (in particular sensitivity to ethics and responsibility issues).

Admission tests	Durat.	Coeff
Application Form		4
Digital and Verbal Logic multiple choice quiz	2H	3
Multiple choice English quiz (vocabulary, grammar, comprehension)	45 min	2
General and digital literacy quiz	45 min	2
Individual motivation and general knowledge	30 min	4

Application fee: 90 €

Admissions tests are based less on technical knowledge than on the candidates' logical, argumentation and analytical abilities, on their interpersonal skills, their competence and their interest in technological, ethical and social issues. More details on the admission tests on our website www.aivancity.ai.

Cost of studies, financing and scholarships

- **8,900€ / year**
- The third year is offered as a work-study program (apprenticeship or professionalization contract) with tuition fees paid by the host company or in a sandwich course abroad or in France.

These tuition fees are defined for the year 2021/2022 and include all study costs, including the international learning trip and the Guarantee of Updating the diploma for 5 years from the date of graduation.

They do not include international living expenses (airfare, transportation, accommodation and meals).*

It is possible to benefit from bank loans negotiated at preferential rates with aivancity partners, repayable after a deductible grace period. It is also possible to benefit from scholarships corresponding to 100% of tuition fees, granted by the AIVANCITY Endowment Fund, according to social criteria and academic excellence.

BACHELOR •

3 YEARS AFTER THE BACCALAUREATE TO BECOME A SPECIALIST IN APPLIED ARTIFICIAL INTELLIGENCE

Pedagogical integration seminar - Promo year dynamics, values and creativity

YEAR 1:
DATA PROCESSING
510H of teaching + 120H of IA clinic

Computer Sciences
- Operating system management
- Introduction to databases

IA Tech & Programming
- Data acquisition, storage, analysis and visualization
- Algorithms and Python programming

Maths & stats for AI
- Statistical analysis of the data
- Mathematics of AI

Business Management
- Business and market economics
- Legal environment of the company
- Introduction to information systems

AI, Ethics & Society
- AI, responsibility and individual ethics
- Ethical and societal issues raised by AI

Languages and Cultures
- English, Second foreign language (LV2)

Projects & personal development
- AI Clinic, Career Coaching
- Internship: 2 to 3 months

aivancity Experience
- Associative, artistic and sports activities
- Cycle of conferences

YEAR 2 :
DATA MODELING
540H of teaching + 120H of IA clinic

Computer Sciences
- Computer servers and networks
- Systems architecture

IA Tech & Programming
- Machine Learning
- Advanced programming with Python
- Data visualization with R

Math & stats for AI
- Mathematical learning model
- Optimization under constraints

Business Management
- Marketing
- Finance
- AI development project management

AI, Ethics & Society
- Data Governance
- AI Ethic by design

Languages and Cultures
- English, LV2

Projects & personal development
- AI Clinic, Career Coaching
- Internship: 3 to 4 months

aivancity Experience
- Associative, artistic and sports activities
- Cycle of conferences
- Citizen Mission

YEAR 3 :
DEPLOYMENT OF ARTIFICIAL INTELLIGENCE
300H of teaching + 300H of IA clinic

Computer Sciences
- Cloud tools
- Information and data security

IA Tech & Programming
- Deep Learning
- Tools for Deploying a Learning Model
- DevOps for AI

Math & stats for AI
- Mathematical learning model
- Optimization under constraints

Business Management
- Human Resources Management
- Entrepreneurial tools for creativity & innovation

AI, Ethics & Society
- Data and rights
- Ethics of AI in business

Languages and Cultures
- English, LV2

Projects & personal development
- AI Clinic, Career Coaching
- Alternate apprenticeship or internship
- Report on the work-study assignment

aivancity Experience
- Cycle of conferences
- International learning trip

Bachelor of Science Applied Artificial Intelligence **RNCP State certified Title,** level 6 "AI Developer" – the dossier is being validated with *France compétences*

Several professional **certifications with Microsoft Azure, AWS or Google Cloud**

Job Market
OR
Continuation of further studies >2nd year of the aivancity Grande École program (Master of Science in AI & Data Science for Business) or any other Master program abroad or in France

Master of Science Machine learning for business intelligence

PART-TIME PROGRAM, AFTER BAC+4/5 (MAINLY FRENCH SPEAKING PROGRAM)

350 hours of training in 12 months, 4 certificates, 24 two-day seminars - Fridays and Saturdays -, a one-week learning trip, tutored projects, a professional thesis and career coaching

Based on a pedagogical approach combining theoretical and project based teaching, the MSc Machine Learning for Business Intelligence from aivancity School for Technology, Business & Society Paris-Cachan will help build a portfolio of new skills ranging from probabilistic modeling to deep learning, unstructured data processing, data visualization, neural networks...

The program provides a thorough analytical foundation in the implementation of machine learning solutions using the best technologies, and develops the ability to go beyond algorithms and data transformation by contributing to strategic decision making in organizations and to the improvement of business processes or added value between different stakeholders.

The program contributes to the understanding of the societal and ethical challenges posed by machine learning and to the emergence of sustainable AI solutions.

Why is this program unique?

- Hybridization between technological, business and ethical aspects
- An organization reconciling professional activity and studies
- One of the most interdisciplinary teaching teams in Europe
- Relationships with technology partners and companies that allow learners to work on real-life issues from a variety of sectors such as finance, software, health, industry, commerce, etc.
- Preparation for the best professional certifications with Microsoft and Amazon Web Services.
- A campus in Cachan, 15 minutes away from Paris, with top-level educational and technological facilities, plus an exceptional landscaped environment.
- A diploma with a lifetime update guarantee©[1] including 5 years free of charge (see page 19).
- A learning trip to the heart of Silicon Valley's AI ecosystem

Diplomas

- A Master of Science degree «Machine Learning for Business Intelligence «.
- A State professional certification registered with the RNCP (National Directory of Professional Certifications) at level 7 (equivalent to Bac+5): «Artificial Intelligence Project Manager» (File in progress with France compétences)
- The following professional certifications whose preparation is integrated into the program: AI-100: Designing and Implementing an Azure AI Solution and/or AWS Certified Machine Learning - Specialty and/or Professional Data Engineer.

[1] The concept of «Diploma Update Guarantee», unique in the world, was invented by aivancity School for Technology, Business & Society and is the subject of a patent registered by the school.

Learning Objectives

- Distinguish the different modalities of machine learning
- Identify the machine learning methods appropriate to a specific business issue
- Analyze, process and model massive data using explanatory statistical models to make them intelligible and exploitable
- Anticipate the ethical and societal implications of the use of machine learning methods.
- Translate raw content into structured data by applying vectorization techniques to make it usable by machine learning algorithms
- Increase data by implementing a functional engineering approach and by relying on business and sector expertise to improve data mining.
- Implement deep learning models by designing an optimized architecture to maximize predictive power
- Anticipate and remedy problems such as overlearning of the models developed by setting up indicators to measure their performance in order to ensure the operationality of the artificial intelligence solution.
- Evaluate the reliability of predictive machine learning algorithms by applying a cross-validation strategy to minimize the influence of extreme values.
- Interpret the results of machine learning algorithms and know how to use them in a specific business context.
- Selecting the appropriate IT architecture for the problem at hand
- Leading the IT development of a machine/deep learning project
- Valuing the results of a machine/deep learning project
- Manage a machine/deep learning project

Admission requirements

aivancity's MSC Machine Learning for Business Intelligence is for :

- Graduates with 4 or 5 years of higher education from engineering schools or universities in computer science, engineering, mathematics, statistics or physical sciences.
- 4 or 5 years of higher education from business school or university in economics or management, who have a keen liking for mathematical tools (linear algebra, etc.) and who have at least some experience (internship, work-study, job) in the fields of data/IA.
- Company executives, with a higher education degree, having at least 3 years of professional experience in the fields of data analyst, data scientist, computer engineer, bio computer scientists, scientists, statisticians, ...

Careers

Machine learning engineer, Machine learning developer, Machine learning project manager, natural language processing engineers... Organizations that develop or wish to develop intelligent systems, particularly in the robotics, consulting, music, finance, aeronautics or bioinformatics sectors, offer good job prospects and ensure a fast development of AI-related functions... Numerous PhD positions (doctorates) are also open to Machine Learning graduates in different scientific fields.

Application fee: 150 €

Selection Process

The selection process takes place in 2 phases: Successful candidates, at the end of the study of their application file, are called to take the admission tests below.

Admission tests	Durat.	Coeff
Written test of mathematics and statistics	1H	3
MCQ in technology & business English	30 min	1
MCQ culture Data / IA	30 min	2
Individual interview	30 min	4

Find the test descriptions and admission procedures on our website www.aivancity.ai.

Cost of studies, financing and scholarships

- **17 000 €**
- These tuition fees are defined for the year 2021/2022 and include all study costs, including the international learning trip and the guarantee of updating the diploma for 5 years from the date of graduation. They do not include international living expenses (airfare, transportation, accommodation and meals).
- It is possible to benefit from bank loans negotiated at preferential rates with aivancity partners, repayable after a grace period.

ONE-WEEK LEARNING TRIP TO SILICON VALLEY

Silicon Valley is the global epicenter of innovation, emerging technologies and startups. One-third of all venture capital investment in the United States is invested in the region, which is boosted by the presence of companies such as Facebook, LinkedIn, Google, Apple, Twitter, Airbnb, Salesforce, and several thousand startups.

MSc Machine learning for Business Intelligence learners will participate in an exceptional Learning Trip, designed especially for them, offering them an interactive immersion in the heart of Silicon Valley. Through an experience design based on direct interaction, students will benefit from networking opportunities with innovative communities, meeting with tech players, discovering startups accelerators and technology hubs, participating in workshops and hackatons, and taking guided tours of AI companies and research institutions. The discovery of San Francisco, Palo Alto, Mountain View, Cupertino, and the new technology hubs of the East Bay, will be for students the opportunity to renew their ideas, test their projects, and amplify their prospects in contact with the innovators who make Silicon Valley.

12 MONTHS PART-TIME TO BECOME AN EXPERT IN MACHINE LEARNING

Accessible after Bac+4 or Bac+5
Seminars on Fridays and Saturdays, every other week.

School resumption seminar
Group dynamics and unlearning

CERTIFICATE 1
Quantitative methods and programming

1. Applied Maths and Statistics
2. bayesian methods
3. Programming for Data Science
4. Best practices of AI programming
5. Decision support system,SQL
6. Big Data: statistical scalability with PySpark

CERTIFICATE 2
Data Science & Modelling

7. Data driven decision making 1
8. Data driven decision making 2
9. Basic methods of data modeling 1
10. Basic methods of data modeling 2
11. Challenges of machine learning 1
12. Challenges of machine learning 2

CERTIFICATE 3
Neural Networks & Deep Learning

13. Neural machine learning 1
14. Neural machine learning 2
15. Current methods of deep learning 1
16. Current methods of deep learning 2
17. Responsible deployment of deep learning 1
18. Responsible deployment of deep learning 2

CERTIFICATE 4
Deployment and management of an AI project

19. Ethics in Machine learning 1
20. Ethics in Machine learning 2
21. AI law
22. Structure and management of an AI project
23. AI use case
24. AI project

24 2-day seminars - Fridays and Saturdays every other week

PROJECTS

ONE-WEEK INTERNATIONAL LEARNING TRIP

PROJECTS, PROFESSIONAL THESIS, COACHING CAREER

Master of Science Machine Learning for Business Intelligence
RNCP State certified Title, level 7 "AI project manager" – the dossier is being validated with *France compétences*
Several professional certifications with Microsoft Azure, AWS or Google Cloud

Continuing Professional Development

(EXECUTIVE EDUCATION)

a hybrid offer that responds to the new challenges of business and jobs transformation

aivancity executive education develops a range of services from individual coaching to the design of tailor-made programs for organizations through training and certification, thus meeting the challenges of skills development in Artificial Intelligence and data science and transformations of companies and public institutions

1 Evolutionary

our training courses are designed and constantly updated to meet:

- the new challenges of the artificial intelligence and data science professions, while systematically integrating business and ethical issues;
- the need for skills development in artificial intelligence and big data management for the various professions: executives, managers, marketing functions, information systems functions, HR functions... but also political decision-makers and managers in the various State and local government administrations.

2 Modular

they are organized in such a way as to offer participants the possibility of evolving from micro-certification to a diploma, through qualifying or certifying training: our short qualifying training courses allow participants to evolve towards certification, which, in turn, allows them to validate a part of a diploma

3 Flexible

our training courses can be customized to participants' professional and personal constraints. E.g.: possibility to follow the training courses over several sessions.

4 Personalized

All of our face-to-face sessions are complemented by online resources to refresh your knowledge or get into the subject matter before the session begins, and access to additional resources throughout the training to reinforce what you have learned and to deepen your knowledge of more specific subjects.

Our professors all have a double scientific and professional expertise.

Ils They offer participants a comprehensive perspective covering best professional practices, a global perspective of issues and solutions, as well as a vision of future developments, tailored to each training course.

Funding

All the professional training courses offered by aivancity have been the subject of a request of registration in the National Professional Certifications Registry (RNCP) and will be, as such, eligible under the Personal Training Account (CPF). This system, set up in 2019, enables all employees to accumulate professional training rights.

Satisfied or reimbursed

aivancity offers you the possibility of being reimbursed, even once the training has begun, if you are not satisfied or if it does not correspond to what you are looking for.

The refund will be immediate and will not require any additional steps.

If you attend the training beyond the 1st half-day for short 3-day courses, and beyond the 1st day for certification courses, you waive the refund clause and declare yourself satisfied.

aivancity is Qualiopi certified

aivancity has obtained QUALIOPI certification, the quality certification mark for training providers, for its entire range of face-to-face and online professional training, for actions allowing validation of acquired experience (VAE) and for apprenticeship training.

The «Qualiopi» brand is based on the new National Quality Standard (RNQ) defined in June 2019, and attests to the quality of the process implemented by training providers to develop skills and make the training offer clearer for companies and users.

This certification opens up the possibility of public or pooled financing of training courses carried out by aivancity for the benefit of its clients, companies or public bodies.

OUR CUSTOMIZED PROGRAMS FOR COMPANIES

Our programs are delivered in several formats: face-to-face at aivancity's premises or in other places in France and in the world, remotely or in blended learning.

aivancity offers companies and public institutions customized multimodal pedagogical solutions.

We define training objectives with our clients, in line with the of the company's context and strategic thrusts, in order to support them in their development plan in the fields of artificial intelligence and data. The programs we design, for and with our clients, are based on a complete integration of technological, business management and ethical aspects.

Our approach aims at identifying and exploiting the levers that prove to be the most important to relay and express the key points of your development plan.

To ensure the effectiveness of these customized programs, we deploy tools to measure the effects produced and the results obtained after the training.

OUR 2020/2021 SHORT TRAINING COURSES

PRICE : 1,500€ BEFORE TAX

Data driven decision making	**January 27-29 2021**
Classical Machine Learning Algorithms	**February 24-26 2021**
Ethics, Bias and Limitations in Machine Learning	**March 24-26, 2021**
Introduction to Artificial Neural Networks	**April 21-23, 2021**
Current methods of deep learning	**May 19-21 2021**
Responsible deployment of deep learning	**June 16-18 2021**

Language of instruction: French - Documentation in English

Small private online courses (SPOCs)

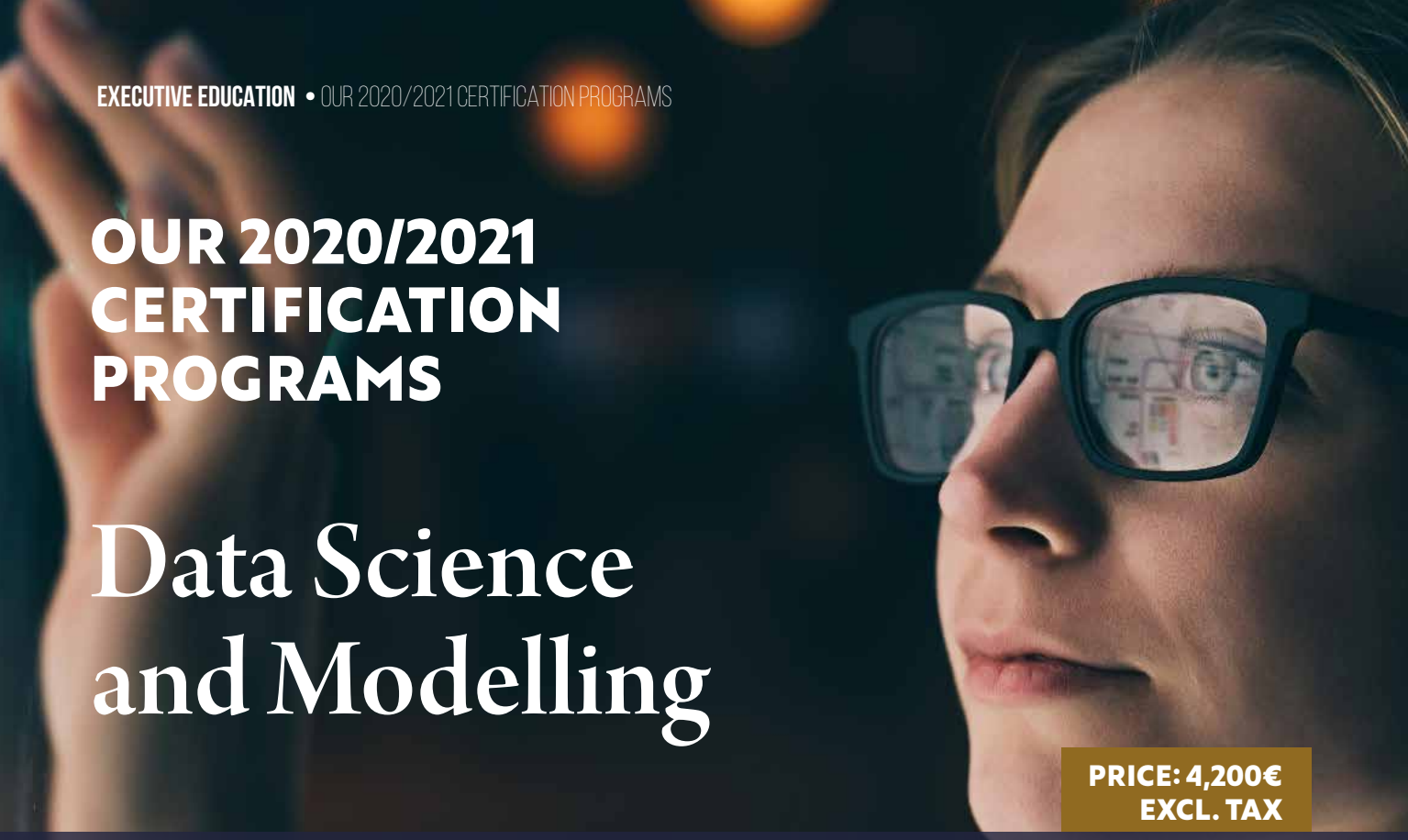
aivancity also accompanies companies to design dedicated online programs, enabling their employees to understand the potential, challenges and impacts of AI on the organization and business.

All of our short programs can be used for in-company training. They can be adjusted to the needs of your organization: sector of activity, context, strategy...

Discover the details of our short training courses on our **www.aivancity.ai**

OUR 2020/2021 CERTIFICATION PROGRAMS

Data Science and Modelling



PRICE: 4,200€ EXCL. TAX

This program is designed for professionals with a minimum of 3 years of experience as Data analyst, data scientist, computer engineer, bio-computer scientists, scientists, statisticians, etc. or for any other manager with a keen taste for mathematical tools (linear algebra, probability, statistics) and programming (Python) seeking to acquire a practical operational insight into data science and machine learning, and discover how to develop an ethical and responsible plan for deploying data-driven solutions within a business. This program aims to strengthen and foster collaborations between the scientific teams and business departments in a company.

The main concepts covered in this program are: data visualization, exploratory data analysis, the power of data and its role in business decision-making processes, the fundamentals of machine learning, its basic concepts and its appropriate application in an organization, the main challenges of machine learning and the ethical and legal considerations of using data to solve a business problem.

The key technical concepts covered in this program are: data-driven decision making, data cleaning, data encoding techniques, data visualization, machine learning algorithms, namely, time series analysis, clustering, classification, and regression methods, model evaluation, performance analysis, underfitting vs. overfitting, data augmentation, and ensemble methods.

DURATION

9 DAYS

DATES

JANUARY 27-29
FEBRUARY 24-26
MARCH 22-24, 2021

OUR CERTIFICATION PROGRAMS 2020/2021

Neural Networks and Deep Learning

PRICE: 4 200€ EXCL. TAX

This program is designed for professionals with a minimum of 3 years of experience as Data analyst, data scientist, computer engineer, bioscientists, scientists, statisticians, etc. or for any other manager with a keen liking for mathematical tools (linear algebra, probability, statistics) and programming (Python) seeking to acquire a practical operational insight into neural networks and deep learning, and discover how to develop an ethical and responsible plan for deploying deep learning solutions within a business. This program aims to strengthen and foster collaborations between the scientific teams and business departments in a company.

The main concepts covered in this program are: the fundamentals of an artificial neural network, its basic concepts and its business applications, the current methods of deep learning and their appropriate applications, the deployment of a responsible deep learning solution, the model interpretability and its social and ethical implications.

The key technical concepts covered in this program are: neural networks, forward and backpropagation, initialization, regularization and optimizations, hyperparameter tuning, convolutional neural network, computer vision, recurrent neural network, long short-term memory, model interpretability, model deployment, roadmap and policy, and data science workflow.

DURATION
9 DAYS

DATES
21-23 APRIL
19-21 MAY
JUNE 14-16, 2021

OUR CERTIFICATION PROGRAMS 2020/2021

AI and Data Science for managers

PRICE: 2,900€ EXCL. TAX

This program is designed for managers and executives who wish to better understand the challenges of artificial intelligence and data for companies in an approach that focuses on practical issues and case studies.

Talking about the growth of the Artificial Intelligence and Data market has almost become commonplace. This growth, attested by data on a global scale, amounts to tens of billions of euros. The French government has just launched major groups' digital mission (August 2020) to accelerate the digital transformation of businesses. The project «Developing a common strategy on artificial intelligence» is among the five major projects identified as priorities.

This development will not be possible without providing managers with the basic understanding of issues related to AI and big data.

This training does not seek to transform managers into «data scientists» or «data analysts» or even into experts in AI and machine learning, but to make them discover the entire AI landscape. This training does not require any prerequisite. The knowledge of the AI and Data Science landscape is essential for them to know if it is necessary to integrate/accelerate an IA and Data approach in their strategic perspectives and where and how to move forward.

DURATION

6 DAYS

DATES

APRIL 21-22-23
MAY 26-27-28, 2021

Overview of the program:

(Find the complete program on www.aivancity.ai)

MODULE 1	Identify and understand the potential of AI for your organization
MODULE 2	Data Science for Business Intelligence
MODULE 3	Artificial Intelligence and Data Ethics

A testimonial and an exchange with a manager who has implemented AI solutions in his/her company as well as a business case that will enrich the contents of the different modules.

OUR 2020/2021 CERTIFICATION PROGRAMS

AI and Big Data for Marketing

PRICE: 2,900€ EXCL. TAX

This program is designed for different professions in the marketing function: from the web marketer to the marketing director/manager, including the product manager, analyst or marketing consultant.

It aims to learn about the new possibilities offered by artificial intelligence in the marketing field: integrating AI tools and big data management with an economical and responsible approach towards users/customers.

The fundamentals remain, the technique evolves and the knowledge of these new tools will allow you to reach a granularity and a determinant relevance for the acquisition of new customers and the valorization of the assets of your products and services.

According to a survey conducted by Axys Consultants and Easyfront consulting in February and March 2020, improving customer service is a priority for 92% of companies and data exploitation is the first item that will benefit from investments over the next 18 months (+22.5%). According to another 2020 survey by Fed Business on the professions of the future in the field of marketing and communication, the major factors that will cause upheavals in the sector are : New modes of communication via social networks (65%), data management (64%) and artificial intelligence (45%). Thus, in addition to the «classic» skills in digital marketing, other skills related to the use of AI and large amounts of data are now being added.

.

DURATION

6 DAYS

DATES

FEBRUARY 10-11-12 MARCH 10-11-12, 2021

A testimonial and an exchange with a marketing director who has implemented AI solutions in his company will enrich the contents of the different modules.

Overview of the program:

(Find the complete program on www.aivancity.ai)

MODULE 1	Artificial intelligence as a means of optimizing marketing strategy
MODULE 2	Exploitation of massive data for marketing
MODULE 3	Legal and Ethical Considerations

OUR 2020/2021 CERTIFICATION PROGRAMS

AI and Big Data Management for CIO/CTOs

PRIX : 2 900€ HT

This program is designed for information systems managers (CIOs, IT managers, etc.), Database Administrator, IT Project Manager...) and, more generally, those in charge of new technologies (CTO: Director of New Technologies) who wish to be trained in AI and massive data management tools, while including a business and ethical approach of the use of data.

The arrival of AI and Big Data in companies has a direct impact on business models. According to a 2018 study by Forester: «The benefits from AI initiatives are real. Half of the companies surveyed expect a ROI on AI investments multiplied by 2 to 5. AI is already delivering results in about one-third of companies, such as improved customer service, revenue growth, reduced risk and improved operational efficiency.

The Information Systems department is at the heart of these transformations.

It is essential that CIOs acquire a new technical background around AI and Data, which has been at the heart of the strategic evolution of companies in recent years, and that they know the new profiles they will have to integrate to implement this strategy.

This certified training course is organized around a triptych: implementation of AI solutions in a company, management of Big Data systems, safety, legal and ethical considerations.

DURATION
6 DAYS

DATES
MARCH 10-11-12
APRIL 7-8-9, 2021

A testimonial and an exchange with a CIO who has implemented AI solutions in his company will enrich the contents of the different modules.

Overview of the program:

(Find the complete program on www.aivancity.ai)

MODULE 1	Implementing enterprise AI solutions
MODULE 2	Big Data Management
MODULE 3	Legal and Ethical Considerations

A 100% ONLINE TRAINING OFFER flexible and collaborative: aivancityX

aivancity, a higher education institution but also a place for open exchanges with professional world, has created aivancityX, based on the reference open-source e-learning platform edX (created by MIT and Harvard in 2012).

aivancityX produces and distributes MOOCs (Massive Open Online Courses) in line with its integrated expertise in AI, technology, business, and society (ethics).

Designed by aivancity's professors and experts, the online programs benefit from the same pedagogical engineering as the «face-to-face» programs and offer great flexibility and easy access. aivancity offers MOOCs and certificates that enable you to quickly acquire skills on one of the AI issues or one of its sectorial aspects.

The certificates

Certificates are short programs that address a particular aspect of AI societal implications or one of its technical aspects.

An online aivancity certificate lasts 6 weeks with one module per week, with the possibility of spreading the module over 2 periods of 3 weeks per year for professionals who have a busy schedule. It requires an investment of 7 to 10 hours of learning work per week, totally online (including readings, courses, exercises, evaluations, exchanges with other learners and the teacher) carried out at everyone's own pace (flexible learning).

The provisional offer of online certificates for the academic year 2020/2021 is as follows:

Topics	Professor aivancity
Ethical and societal issues of AI	Dr. Emmanuel Goffi
Data science for business	Boris Yepmo et Stéphane Urena
Artificial intelligence strategy	Dr. Alberto Todeschini et Dr. Doreid Ammar
Machine learning for business	Dr. Amel Mhamdi
Maths for AI & DS	Dr. Frédéric Oru
Legal issues of artificial intelligence and data	Dr. Ysens de La Panouse
AI and Art/Culture	Valentin Schmite et Marion Carré
Computer vision: business applications & ethical challenges	Dr. Anas Kharboutly

The Massive Open Online Courses (MOOCs)

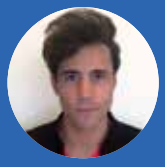
aivancity also offers MOOCS (Massive Online Open Courses) on cutting-edge topics related to AI and its societal impact.

An aivancity MOOC lasts 4 weeks with one module per week. It requires an investment of 4 to 5 hours of learning work per week, entirely online, including reading, courses, exercises, evaluations, exchanges with other learners and the teacher (flexible learning).

Each MOOC can be taken for free. It is necessary to pay a fee of €150 to obtain a certificate of completion.

The provisional offer of MOOCs for the 2020/2021 academic year is as follows:

Theme	aivancity Professor
Autonomous Vehicles: AI Ethical Issues & Strategic Implications	Hubert Etienne
Applications of Artificial Intelligence in E-Commerce	Dr. Yang Jiao
Artificial intelligence by Design	Dr. Valérie Morignat



Focus on MOOC Autonomous Vehicles: AI Ethical Issues & Strategic Implications».

aivancity Professor in charge of the course: Hubert Etienne is a philosopher and doctoral student in artificial intelligence ethic at the Ecole Normale Supérieure and Facebook AI Research and AI Ethics Affiliate Professor at aivancity. He has published several scientific papers on the ethics of autonomous vehicles and regularly speaks at conferences on these topics.

Language: English/French
Duration: 4 weeks at the rate of one module per week
4 to 5 hours of weekly work learning entirely online
Prerequisite: An open mind

Program

MODULE 1	Strategic issues of the autonomous mobility industry
MODULE 2	Ethical Concepts and Moral Dilemmas
MODULE 3	Autonomous vehicles and moral dilemmas
MODULE 4	Beyond Autonomous Vehicles

Learning Objectives

- An in-depth understanding of the economic, political and ethical issues underlying the development of the autonomous vehicle industry.
- Knowledge of the approaches and methods used by philosophers and psychologists to deal with moral dilemmas.
- A personal reflection that promotes a more critical and informed understanding of the ethical issues of AI and an informed opinion on the problems specific to autonomous vehicles.

The main teaching materials include:

Teaching video capsules, numerous video supports and a range of textual resources diversified in their degree of analysis and complexity (research but also popularization) as well as in their approach (philosophical, psychological, business, legal, computational) so that all participants can develop a multidimensional point of view, enabling them to grasp the subject in all its complexity as well as to stimulate debate.

The program is also built around group discussions and interactive presentations that provide learners with thought-provoking circuits that can be tailored as closely as possible to their answers in order to boost their attention and stimulate their reflection.

International Summer School

Artificial Intelligence and Big Data: technologies, practices and challenges

aivancity offers two summer programs starting in the summer of 2021:

«AI & Big Data: technologies, practices & challenges» for French and international students of all ages and specialization areas

«Understanding Artificial Intelligence and massive data» for high school students from the age of 16 years old.

These programs help discover Artificial Intelligence in its technological and organizational implications and explore the issues and challenges it poses to the company.

In addition to presentations and lectures by the best specialists in the sector, there will be an emphasis on case studies, work in small groups, testimonials from AI actors, and visits to companies involved in AI projects.

Participants in these summer programs will also have the opportunity to carry out an AI project (Chatbot, robot, prediction from data ...).

Prerequisite

No prerequisites are required to attend this program. It is designed for high school students or students who are not specialists in computer science and artificial intelligence.

Next sessions

Student Program: June 1 to 26, 2021 - 4 weeks, Monday to Thursday, 9:30 am to 4:30 pm.

High School Program: July 5 to 29, 2021 - 4 weeks, Monday to Thursday, 9:30 am to 4:30 pm.

Registration fees

€2000 for the high school program, and € 2500 for the student program, including company visits and the cultural day, not including accommodation and meals (lunch and snacks).

Certificate and ECTS Credits

At the end of the summer school, participants who have validated the program receive an aivancity certificate. Training for students can earn them up to 10 ECTS credits (5 US credits).

Location

The training takes place in the Paris region, on the campus of our partner, the EPF Ecole d'Ingénieur.e.s in Sceaux, while waiting for the inauguration of our new campus in September 2021; company visits are organized in the Paris region, as well as a cultural day related to the AI field.

Language: French or English depending on availability

PROGRAM OVERVIEW

WEEK 1

Introduction to Artificial Intelligence:
Historical presentation, AI tools, group work: the panorama of the major players in AI in 2020 (USA, China, Europe)

Professional Practices:
Analysis of use cases: AI fields of application, changes in practices, company visit with illustration of Artificial Intelligence applications.

Realization of an AI project: working groups, project launch, first steps

WEEK 2

AI in Action: Practices and Issues
Company visit, AI startup testimonials

AI and society:
General presentation of the problems, internal questions, necessary data, means of communication or/and e-reputation, click workers, testimonials and exchanges with AI actors.

Realization of an AI project: from idea to realization

WEEK 3

I mean, where's the data?
Large volumes of data, data economy, return on biases and impacts
Visit a data center

Realization of an AI project: the test phase, the confrontation with reality
Cultural day: Virtual room Paris, Art and AI (Atelier des lumières)

WEEK 4

The main steps of an AI project
Sectors and professions impacted by AI
On the side of state actors, international organizations, elected officials and journalists: who does what? Who thinks what about AI? Meetings with representatives of different actors
Realization of an AI project: presentation of the project
Closing Ceremony and Presentation of Certificates

Detailed programs and registration details
on our website **www.aivancity.ai**

A 5.0 CAMPUS FOR TODAY'S EDUCATION AND TOMORROW'S SOCIETY

After the departure of the ENS, the Campus of Cachan will be reinvested by new educational institutions in renovated buildings: the EPF Ecole d'Ingénieur.e.s, the ECAM, the IUT of Cachan, an industrial and technological training center, the GIM AFORP and aivancity.

In addition to the CROUS residences and facilities already present, the Campus will host housing and services. The entire campus is being built as part of a global urban project; eventually, it will be opened to the city via new accesses and soft paths. From 2025, line 15 south of the Grand Paris Express will serve the Arcueil-Cachan station (RER B interconnection).

MOVING IN **IS PLANNED FOR THE SUMMER OF 2021**

The school is designed as an accessible and open place, in the heart of the city and connected to the world. At the dawn of the artificial intelligence revolution, it is important to position exchanges, sharing, meeting and human relations at the heart of the transmission of knowledge and skills acquisition.

The campus development project aims to reinvent the pedagogical and work spaces, to offer a unique learning experience and to further open up the school to its environment. The goal is to offer a unique experience for future learners, but also a place where partner companies will be able to get involved with the student community.

The Campus aivancity project in Cachan is the transformation of an existing building to give it a second lease of life, a second life. The project creates spaces of agility to adapt to a work environment, to pedagogical evolutions and ways of learning, but also to create one's own path, one's own thread of learning woven between spaces, between disciplines, between oneself and others.

Throughout the duration of the work, aivancity is located in the Emergence business center, 121 rue d'Aguesseau in Boulogne-Billancourt - M°9 - Marcel Sembat / M°10 - Boulogne Jean-Jaurès. Tel: +33 (0)1 41 22 13 82 Mail: contact@aivancity.ai

AMPHITHEATRE-ARENA, AI CLINIC, LIBRARY, COWORKING AREA, RELAXATION AREAS

23 HECTARES

OF LANDSCAPE, GREEN SPACES, SPORTS FACILITIES AND SERVICES

+15

LEARNING ROOMS

+30

DYNAMIC GROUP WORK BOXES...

4 000 M² ON 4 LEVELS

The development project led by Groupe Patriarche, aivancity's partner in this ambitious and innovative operation, aims to increase interaction between the learners' community, making it the pedagogical signature of the school, offering an experiential learning path made up of facilitating spaces, modularity continuity and learning personalization to create, within the path, one's own path: the one that resembles us.

Here, the connections between spaces are carefully maintained, worked on and expressive. The inner forum, a real relationships condenser, connects the halls, the convivial spaces and the amphitheater on two levels via bleachers. A meaningful gesture of the transformation of the place, it connects the shared spaces and reconnects them, creating a forum for students and site actors.

The building recounts another learning experience that is sensitive, cognitive, challenging, in short, inviting. It tells the story of a path to learning. Not an authoritarian, directed path, but a path that proposes a path of one's own. The building recounts another learning experience, sensitive, cognitive, challenging: inviting. It tells the story of a path to learning. Not an authoritarian, directed path, but a path that proposes a path for oneself. In this landscape of tomorrow, a world that is being built every day and step by step.

AI CLINIC

AN INNOVATION AT THE SERVICE OF STUDENTS AND COMPANIES

Objectives

- **Enable students to learn data science & AI while practicing.**
  The AI Clinic will require 6 to 9 hours of work per week and the projects they will be working on will be an integral part of the training.
- **Promote simple and free access to all organizations that need artificial intelligence to achieve their ambitions: small and medium enterprises, associations and non-profit organizations.**

The AI Clinic will be equipped with the best existing technological tools such as virtual machines co-designed and made available to students in the framework of collaborations with Microsoft, AWS and Google.

The physical space will also be fitted out with equipment for prototyping (iMac 8th generation, 3D printers, ...).

The AI clinic takes its model from medical or legal education in which students, supervised by their professors, are confronted with real cases and transposes it to companies (VSE, SME), organizations and non-profit associations. The latter are encouraged to present their AI projects, their ideas, their difficulties and their questions to clinic students and to the aivancity professors who supervise them. The students then imagine solutions within the framework of a global technical, business and responsible approach.

OUR DOORS OPEN DAYS

Would you like to know more about artificial intelligence, the jobs and programs available depending on your background or your aspirations? Let's meet at our doors open days!

On the agenda:

Lectures on Artificial Intelligence, the stakes, the professions.

Presentation of our Programs

Meetings with teaching staff and teachers

Advice and support throughout your training project

Find our other dates and register on our website
www.aivancity.ai

Our 2020/2021 ODDs will take place in our offices located at 121 rue d'Aguesseau. 92100 Boulogne Billancourt, on Saturdays from 10H to 14H:

Saturday, November 28th, 2020
Saturday, December 12th, 2020
Saturday, January 23rd, 2021
Saturday, February 20th, 2021
Saturday, March 20th, 2021
Saturday, April 17th, 2021
Saturday, May 22nd, 2021
Saturday, June 19th, 2021

↓ OUR ENTRANCE EXAM DATES

Different competition sessions are offered starting in January at the rate of one session per month - based on the number of places available.

Saturday 9th January 202
Saturday, February 6, 2021
Saturday, March 6, 2021
Saturday, April 3, 2021 *
Saturday, May 8, 2021 *
Saturday, June 5, 2021 *

*Subject to availability

aivancity
conference
cycle

“Artificial Intelligence and Society”

Artificial intelligence is not just a technical tool exclusively reserved for a few specialists, it is part of our lives and its impact on companies, on exchanges and on living together is more and more significant.

The aivancity conferences will bring together specialists and non-specialists, philosophers and AI practitioners, entrepreneurs and leaders, all of whom are questioning themselves and us on how this revolution will change our future: how shall we work tomorrow? How shall we be cared for? How will artificial intelligence change our everyday lives, and how will AI influence (if at all) our behaviors?

Contact : Tél. : +33 (0)1 41 22 13 82 / Mail : contact@aivancity.ai / www.aivancity.ai

aivancity
SCHOOL FOR TECHNOLOGY, BUSINESS & SOCIETY

Paris-Cachan Campus

A 5.0 CAMPUS FOR TODAY'S EDUCATION AND TOMORROW'S SOCIETY

Expected to move in the summer of 2021

In the meantime, meet us at the Emergence Business Center
at 121 rue d'Aguesseau in Boulogne Billancourt.

aivancity
SCHOOL FOR TECHNOLOGY, BUSINESS & SOCIETY

Contact : Tél. : +33 (0)1 41 22 13 82 / Mail : contact@aivancity.ai / www.aivancity.ai