SKEMA BUSINESS SCHOOL

AI FOR BUSINESS SUMMER SCHOOL 2023

July 3-7, 2023
Grand Paris Campus

The mission of SKEMA AI School for Business is to advance artificial intelligence research and pedagogical experiences to prepare the managers of the future to work in an AI-enabled environment. It aims to impart a wide range of AI fundamentals and managerial perspectives to students and leaders from different fields. Students at SKEMA AI School for Business will learn and acquire a solid understanding of artificial intelligence solutions and applications by taking courses co-delivered by SKEMA's faculty, experts from the business world and AI players across the world.

Objectives

- Explore how Human Centric Artificial Intelligence systems applied to business may generate economic, ethical and societal value.
- Build an intellectual foundation for the emerging and critically important discipline of Data Centric AI.
- Adopt a multidisciplinary perspective based on the collaboration between social scientists and AI researchers and engineers to develop know-how to explore business opportunities driven by AI using a rigorous methodology.

A network of corporate partners and a worldwide reach in AI

SKEMA AI School for Business actively develops synergies between the worlds of higher education and business. The school has developed a dense network of partnerships with leading AI companies such as Microsoft, IBM, Pyron, Align Technology, Infinia ML, Red Hat, SAS and NetApp.

The school fosters regional and national discussions that lead to direct impact on the economic ecosystem. Its Montreal resource and research center serves as a resource and development centre for all SKEMA campuses worldwide.

SKEMA is a founding member of the 3IA Côte d'Azur, along with the other primary partners of UCA : CNRS, MINES ParisTech, Inria, Inserm and EURECOM.

More information: *https://www.skema.edu/ai-school-for-business/overview-ai-school-for-business/overview-ai*

CONTENTS

"Our nine campuses are located in global cities, thriving technology parks and economic hubs. Connections with the campuses' respective regions enable SKEMA to contribute to the development of the local economy while simultaneously offering our students a truly global experience.

SKEMA, School of Knowledge Economy and Management, is a global school that focuses on the all-round development of students to meet the evolving needs of the 21st century — individuals who are responsible, mobile, multicultural and managers of information, data and knowledge. These are the values and the core identity of our research, our programmes and our structure.

SKEMA has been revolutionary in the development of its proactive international strategy and bases its position on a desire to change the conventional business school-training model to tackle new economic, social and environmental challenges more effectively. Against the backdrop of a global economy where agility and innovation are essential, SKEMA trains individuals who have the skills to transform industries, organisations and society, overall.

Its students study across the five continents in which the school has set up campuses – Asia, Europe, North America, South America and Africa – and are ready to face the challenges of working in global, multicultural and responsible companies."

Alice Guilhon

Dean & executive president, SKEMA Business School
President of the CDEFM — Conférence des Directeurs des Écoles Françaises de Management

54,000
graduates across the world

10,000
students

+130
nationalities

9
campuses worldwide:
Belo Horizonte, Lille, Nanjing, Paris, Raleigh, Shanghai, Sophia Antipolis, Stellenbosch – Cape Town, Suzhou

Multi-accredited

EQUIS, AACSB, EFMD EMBA Accredited. Member of the Conférence des Grandes Écoles (CGE) and the Conférence des Directeurs des Ecoles Françaises de Management (CDEFM)

FT **3**rd best worldwide: MSc Financial Markets & Investments (2022)
2nd *worldwide for the overall satisfaction*

More information: skema.edu
News Room section

RELEVANCE AND CONTEXT

AI is playing an increasingly foundational role across almost all fields of study in many universities and ultimately at industry. However, many students and practitioners whose research and study would benefit from the incorporation of data science lack the necessary skills to take advantage of this rapidly advancing field.

AI is a field mostly characterized by development of algorithms that are implemented in software and run on a machine. These algorithms are commonly referred as machine learning algorithms or models. Each algorithm is characterized by a set of parameters, and particular parameter settings yield associated algorithm characteristics. The algorithms have the capacity to learn, based on observed data. The learning process basically means that the algorithm can infer which set of parameters setting is best matched to the data of interest. After algorithm parameters are set, the associated model captures the underlying characteristics of the data usually based on finding correlations between the input variables (features) and the target (label). The algorithm, with learned parameters, may subsequently be applied to new data, with the goal of making predictions, forecast or estimate future data, optimize objective functions upon decision variable and constraints, or learning insights. Data Science methods are primarily tailored to develop appropriate models/algorithms for datasets and problems of interest, plus the capacity to learn the model parameters given data.

AI can be applied to all industries to virtually solve almost all kinds of business problems. Retail, manufacturing, bank, insurance, telecommunications, healthcare, life sciences, education, government, all these different types of industries can benefit from data science and machine learning models to not just solve business problems but also to improve their operational processes and thrive in a very competitive world.

Ethics is an important consideration when applying AI to any industry, as it ensures that the technology is used in a responsible and transparent manner that benefits society as a whole.

"To prepare the managers of the future to perform in AI-augmented environments new hybrid training programs must be designed and made available in a lifelong learning approach.

This requires multidisciplinary academic research studying how human-centric Artificial Intelligence applied to business may generate economic, ethical and societal value."

Margherita Pagani - Associate Dean Skema AI School for Business, Professor Artificial Intelligence in Marketing

AI FOR BUSINESS SUMMER SCHOOL

The 5 days curriculum in the AI for Business Summer School is targeted to individuals interested in learning about how to apply AI, data science and machine learning with a primary focus on practical application to business.

The classes in this summer school will focus on the areas of data science that have made the biggest advances in utility over the last several years, including machine learning models, forecast, optimization, network science, computer vision and natural language processing. The classes will concentrate on methods that allow algorithms to train effectively and be applied to solve business problems in multiple industries.

WHY

The AI for Business Summer School will introduce the main techniques, methodologies and ethical business implications associated with data engineering, data exploration, statistical and machine learning models, forecasting, optimization, network science, computer vision, natural language processing, and model assessment and deployment.

All these topics will be covered under the business applications perspectives. Topics in modern artificial intelligence such as computer vision and natural language processing will be demonstrated as AI tools to be used in specific business applications.

Additionally, the AI for Business Summer School will provide hands-on training in the latest data science and machine learning software, both open source and world-class frameworks.

WHO SHOULD ATTEND

The AI for Business Summer School is particularly suited to students but also members of academia and practitioners, who seek a comprehensive introduction to the proper tools assigned to AI for Business, including data science and machine learning models, along with best practices and real use cases presented by leaders in the field.

Leading companies will partner with the AI for Business Summer School to present successful reference customer cases.

HOW

Face-to-face courses, company visits, case studies, challenging group-work.

Classes in the morning and company visits/group projects of cultural event in the afternoon.

COURSE OBJECTIVE

The main goal of the summer school is to provide students a strong foundation in Artificial Intelligence and its main disciplines like data analysis and exploration, predictive modeling, forecasting, optimization, and deep learning, but mostly in how to apply AI techniques and models to solve business problems. The summer school is open to non-specialists and gives a solid understanding of AI for business. The summer school will provide hands-on opportunities to develop models and apply them to understand and solve business questions.

TEACHING METHODS

▸ Lectures.
▸ Hands-on development.
▸ Workgroup tasks and discussions.

LEARNING OUTCOMES

After the summer school, the students will be able to:
▸ Understand the different AI techniques and identify which one fits better to specific business problems.
▸ Know the process associated to the analytical lifecycle.
▸ Understand the main algorithms for supervised machine learning.
▸ Understand the objectives and techniques for forecasting.
▸ Understand the main goals in optimization models and the different approaches according to the type of the business problem to solve.
▸ Understand the deep learning models and identify the possible business application for each one of them.
▸ Identify the main tasks assigned to the ModelOps, the importance of model assessment and the benefits of monitoring models in production.
▸ Understand the importance of ethics in AI and its consequences in our society.

Students have the possibility to get transferable credits (2 ECTS). Students need to consult their home institute to validate credits transfer.

PROGRAMME CURRICULUM

MONDAY, JULY 3rd (09:00 – 12:00)

Introduction to Artificial Intelligence Systems for Business
▸ Defining Human-Centric AI
▸ Applications of AI systems in business tasks: overview based on type of processes and ethical implications
▸ Applications of generative AI in creative tasks and implications on business creativity

Business case studies
▸ Applications of AI systems in retail
▸ Applications of AI systems in government
▸ Applications of AI systems in societal challenges

TUESDAY, JULY 4th (09:00 – 12:00)

Supervised Machine Learning Models and their Application to Business
▸ Linear and Logistic Regression
  • Applications in Bad Debt
▸ Decision Tree, Gradient Boosting, Random Forest
  • Applications in Sales and Marketing Campaigns
▸ Artificial Neural Networks
  • Application in Fraud Detection
▸ Supervised Vector Machine
  • Applications in Customer Acquisition
▸ Factorization Machines
  • Applications in Recommender Systems

Forecasting Models
▸ Introduction to Time Series
▸ Stationary Time Series
▸ Trend Models
▸ Seasonal Models
▸ Models with Explanatory Variables
▸ Business Cases in Replenishment, Sales, and Hospitality

WEDNESDAY, JULY 5th (09:00 – 12:00)

Optimization Models
▸ Introduction to Mathematical Optimization
▸ Linear Programming
▸ Nonlinear Programming
▸ Integer and Mixed Linear Programming
▸ Decomposition algorithm
▸ Quadratic programming solution algorithm
▸ Business Applications in Workforce Planning, Call Center, and Manufacturing

Network Science
▸ Network Analysis
  • Subgraphs
    • Connected Components, Bi-Connected Components, Reach, Core, and Communities
  • Centralities
    • Degree, Influence, Closeness, Betweenness, Eigenvector, PageRank, Hub, and Authority.
  • Business Applications in Customer Influence and Fraud Detection
▸ Network Optimization
  • Cycle, Clique, Path, Shortest Path, Transitive Closure, Minimum Cut, Minimum-Cost Network Flow, Maximum Flow, Minimum Spanning Tree, Linear Assignment, Topological Sort, Travelling Salesman Problem, and Vehicle Routing Problem.
  • Business Applications in Supply Chain, Public Transportation, and Routing

THURSDAY, JULY 6th (09:00 – 12:00)

Ethics in AI
▸ Transparency and Accountability
▸ Explainability and Interpretability
▸ Fairness and Bias
▸ Privacy and Security
▸ Trust and Algorithm Aversion
▸ Robotic services

FRIDAY, JULY 7th (09:00 – 12:00)

Deep Learning – Computer Vision
▸ Introduction to Deep Learning
▸ Convolutional Neural Networks
▸ Recurrent Neural Networks
▸ Tuning a Deep Neural Network
▸ Advanced Topics: Transfer Learning and Reinforcement Learning
▸ Business Applications in Default Detection for Manufacturing

Natural Language Processing and its application in Marketing
▸ Document Summarisation
▸ Text Classification: Topics, Categories, Clusters
▸ Sentiment Analysis
▸ Speech Recognition
▸ Neural Machine Translation
▸ AI and computational creativity: overview
▸ Business Applications in Customer Service

VISITS:

- Cultural event on Monday July 3rd afternoon
- Company visits on Tuesday July 4th afternoon
- Creative Lab on Wednesday July 5th afternoon
- Company visits on Thursday July 6th afternoon

The programme schedule is subject to any modification according to the real situation.

THE ACADEMIC TEAM

Margherita Pagani is Associate Dean, SKEMA AI School for Business and Full Professor Ph.D. HDR of digital and artificial intelligence in marketing at SKEMA Business School in Paris. She holds a Ph.D. in Management and the HDR (Habilitation à Diriger des Recherches), MSc in Business Administration from Bocconi University, and professional certificates in data and modelling in engineering science and business from Massachusetts Institute of Technology. She was the Founder Director of MSc in Digital Marketing & Data Science and Founder Director of the Research Centre on Artificial Intelligence in Value Creation at emlyon business school. She was a Professor of digital marketing at Bocconi University, Visiting Scientist at MIT's Sloan School of Management and Visiting Professor at UCLA Los Angeles, Georgetown University (Washington), National University of Singapore, Redlands University (CA). She serves as an Associate Editor of Micro&Macro Marketing.
Her current research examines consumer behaviour and AI systems, AI business models, and the impact of AI on products, processes and digital ecosystems. She has published several books, two encyclopedias and articles in leading international journals. She won several global awards for her research activity and publications.

Carlos Pinheiro is a Distinguished Data Scientist at SAS, USA., a Visiting Professor at Data ScienceTech Institute, France, and a Lecturer at SKEMA Business School, USA. He has been working in analytics since 1996 for some of the largest telecommunications providers in Brazil, in multiple roles, from technical to executive. He worked as a Senior Data Scientist for EMC in network analytics, optimization, and text analytics projects in Brazil, and as a Lead Data Scientist for Teradata in machine learning projects in South America. Dr. Pinheiro has a B.Sc. in Applied Mathematics and Computer Science, a M.Sc. in Computing and holds a D.Sc. in Engineering from Federal University of Rio de Janeiro (2005). He has accomplished a series of Post-Doctoral research terms in different fields, such as in Dynamic Systems at IMPA, Brazil (2006-2007), in Social Network Analysis at Dublin City University, Ireland (2008-2009), in Transportation Systems at Université de Savoie, France (2012), in Dynamic Social Networks and Human Mobility at Katholieke Universiteit Leuven, Belgium (2013-2014) and in Urban Mobility and Multi-modal Traffic at Fundação Getúlio Vargas, Brazil (2014-1015). He has published several papers in international journals and conferences, he is recipient of U.S. Patents, and author of Network Science: Analysis and Optimization Algorithms for Real-World Applications (forthcoming in 2022, Wiley), Introduction to Statistical and Machine Learning Methods for Data Science (2021, SAS), Heuristics in Analytics: A Practical Perspective of What Influence Our Analytical World (2014, Wiley) and Social Network Analysis in Telecommunications (2011, Wiley).

Ali Ozkes is an associate professor at SKEMA Business School. Previously, he was an associate professor at the Léonard de Vinci Pôle Universitaire, Research Center, an assistant professor at the Institute for Markets and Strategy in the Department of Strategy and Innovation at WU Vienna University of Economics and Business. He obtained his PhD from Ecole Polytechnique in Paris and his BSc from University of London and London School of Economics and Political Science. His research interests include behavioral game theory, experimental economics, social choice theory, text mining, and AI ethics. He has published in top field journals, received grants for interdisciplinary research projects on AI ethics, and participates in research collaborations in France and abroad.

Jose Carlos Moreno received the PhD degree in Computer Science in the Department of Computer Architecture, University of Malaga. He also obtained a Double Degree Program: MBA & Master in Big Data and Business Intelligence, from the European Business School of Barcelona.
He works as Senior Data Scientists at ACSS institute from Paris-Dauphine University. His work focuses on applying Machine Learning techniques to solve Business and Social Sciences problems in research and the industry.
He is also adjunct professor at SKEMA teaching Databases and SQL at MSc PMUX program, and Artificial Intelligence and Machine learning wit Power BI in the in the MSc IMBD program.

Other guest professors and invited speakers will join the program.

PRACTICAL INFORMATION

WHO CAN APPLY

▸ Highly motivated postgraduate or undergraduate students and professionals
▸ A good level of English language

PROGRAMME FEES

▸ € 1500 per student.
▸ € 1250 per student for "Early enrolment": students confirm their registration before 31st March 2023.
Including application fees, course and document fees, coffee breaks, 4 lunches and a farewell diner, as well as the public transportation fees for scheduled visits.

Travelling and accommodation expenses are not included.
Possibility to be accommodated in SKEMA's student apartment, contact summerschool@skema.edu for more information.

APPLICATION

Apply online: *https://www.skema.edu/summer-school/registration*
Apply online before May 31st 2023
Early enrolment before March 31st 2023

GET MORE INFO

https://www.skema.edu/summer-school/ai-for-business-overview

CONTACT US
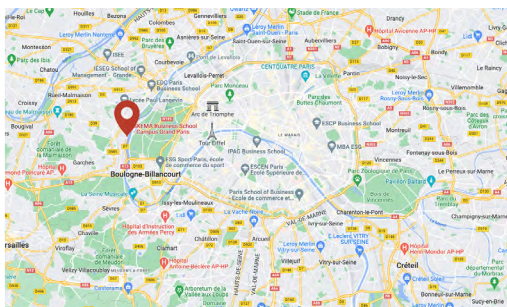
Email: summerschool@skema.edu
Phone: +33 (0)4 9395 4512

Grand Paris campus

Eiffel Tower

Grand Paris campus

Grand Paris campus

▶ CAMPUS OVERVIEW

SKEMA Business School's Grand Paris Campus is spread across 14,000 m2 , including 1,500 m^2 of rooftop terrace with views of the Seine and the Eiffel Tower. It reflects the three mainstays of the school's DNA: innovation (through our research centres and AI activities), globalisation (with around 120 nationalities on campus) and digitalisation (hyperconnected to the world).

More information about the Paris campus: https://www.skema.edu/campus/paris-campus

SKEMA BUSINESS SCHOOL

Belo Horizonte Lille Nanjing Paris Raleigh Shanghai Sophia Antipolis Stellenbosch - Cape Town Suzhou

GLOBAL BBA
Business Administration - *Belo Horizonte*
Global Management - *Sophia Antipolis*
International Business - *Raleigh*

ESDHEM
Prep School + French Licence
‣ Management
‣ Law

GRANDE ECOLE PROGRAMME
Master in Management

MASTÈRE SPÉCIALISÉ® / SPECIALISED MASTER
CGE-certified

‣ MS Auditing, Management Accounting & Information Systems
‣ MS Wealth Management
‣ MS Supply Chain Management and Purchasing
‣ MS Project and Programme Management & Business Development
‣ MS Marketing Data & E-Commerce

TWO-YEAR MSc

MASTERS OF SCIENCE PROGRAMMES

Marketing
‣ International Marketing & Business Development
‣ Luxury & Fashion Management
‣ Global Luxury and Management
‣ Luxury Hospitality and Innovation - *Dual degree with École Ferrières*
‣ Digital Marketing
‣ Product Management & UX Design - *Dual degree with POLIMI Graduate School of Management and POLI.design*

Finance
‣ Corporate Financial Management
‣ Financial Markets & Investments
‣ Auditing, Management Accounting & Information Systems
‣ Sustainable Finance & Fintech

Management
‣ Project and Programme Management & Business Development
‣ Digital Business & Artificial Intelligence
‣ International Human Resources & Performance Management
‣ Global Supply Chain Management and Procurement - *In collaboration with MIT Center for Transportation & Logistics*
‣ Strategic Event Management & Tourism Management
‣ Research & Management Innovation
‣ Management Science - *Dual degree with Tongji University*

Business & Strategy
‣ International Business
‣ Entrepreneurship & Innovation
‣ Entrepreneurship & Sustainable Design
‣ Business Consulting and Digital Transformation
‣ International Strategy & Influence
‣ Artificial Intelligence for Business Transformation - *Joint degree with ESIEA*

Other programmes
‣ Academic Diploma Program in Technology Entrepreneurship & Start-up Management *Joint programme with Berkeley*
‣ Academic Diploma Program in Digital Marketing and Business and Management of Entertainment - *Joint programme with UCLA*

TRIPLE MASTER
*Loyola X SKEMA X LMU
(USA/France/Germany)*

PhD & DOCTORAL PROGRAMMES

GLOBAL EXECUTIVE MBA

EXECUTIVE SPECIALISED MASTERS

EXECUTIVE PROGRAMMES FOR MANAGERS
‣ Online programmes
‣ Short programmes
‣ Customised programmes
‣ Programmes leading to a qualification

SUMMER SCHOOLS