+33 (0)1 48 10 09 46
formation@ambient-it.net
140 Avenue Jean Lolive 93500 Pantin - France

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IA Training: State of the Art

2 days (14 hours)

Presentation

Who would have wished to understand how search engines, social networks or e-commerce worked in 2002? If you're one of those people who want to anticipate the impact of technologies that are revolutionizing the world, then you've got your answer. Artificial intelligence is the must-have topic of recent years, and understanding what it is and implies is becoming a real skill to have. Whatever your industry, your aspiration, your profession, understanding this trend will be key to you.

Artificial intelligence is a booming market, with nearly 1,000 start-ups worldwide, and will be worth $60 billion by 2025. This revolution will have an impact on all sectors of the economy, but also on every department of a company: Marketing, HR, Customer Service, R&D... Forcing companies to adapt to these new uses by offering new services such as: virtual agents & chatbots, connected objects & environments, robots, natural language processing, UX & Process automation....

Many managers are currently asking themselves: What are the challenges facing your business? What is your vision for the next few years, and how can you support this transition? Faced with the multitude of possible technologies and applications for your business, it's hard to see clearly. And yet, by integrating AI into your applications, you can gain certain decisive competitive advantages: improved conversion rates, proximity to your customers, productivity gains... This new disruption is a real break with the Old World, making way for new strategic innovation challenges.

In our training course, which covers the state of the art of Artificial Intelligence worldwide, you will be able to explore the major existing projects, new applications and their contributions, so as to be able to identify the possible interests in your sector of activity and the new opportunities that will be created in the near future. Our training course will introduce you to the main approaches to intelligent digital transition, and give you the keys to tackling the governance of Artificial Intelligence in business. From Machine Learning to Deep Learning, from classification to generation, we will demystify one of the greatest advances of the 21? century.

Objectives

- Knowing and understanding artificial intelligence (AI)
- Know the applications and potential benefits of its use by business, activity or sector
- Identify the main AI solutions, tools and technologies
- Keys to the success of an Artificial Intelligence solution
- Identify the challenges of AI (particularly legal and ethical)
- Understanding the difference between Machine Learning and Deep Learning
- Integrate AI into your business and understand its governance challenges
- Know the state of the art & current research

Target audience

Managers, Project Managers, Project Leaders, Technical Directors, Sales, Marketing, HR, Innovation Directors... Anyone interested in the impact of this technology on the future of employment.

Prerequisites

In-depth general IT culture

Pedagogy

- Reverse engineering
- Flipped classroom
- Workshops
- AI entrepreneurs live sessions
- Data scientists live coding sessions

Further information

- We offer an exclusive training course on TensorFlow & Deep Learning
- Complementing Facebook's Pytorch technology

Artificial intelligence training program - AI for Businesses

Day 1

The main questions & answers about AI

- What is artificial intelligence (AI)?
- What does AI do, its potential and its limits?
- What are the different use cases by industry?
- What are the different algorithms and technologies underlying artificial intelligence (machine learning, deep learning, reinforcement learning, transfer learning)?
- What are the components (infrastructures, tools, frameworks) that have enabled AI to emerge?
- How do you build a team around an AI project?
- How do you set up an AI project?
- How do you build an AI solution or assess the quality of partners (consultancies, startups, solution providers)?
- How long does it take to deploy a project?
- How do you establish a global AI strategy?
- Who are the players and what are the main trends?
- What are the national strategies?
- What are the ethical, moral and social impacts?
- The impact on the future of work

Introduction

- AI definition and neuroscience principles
- Definitions of technologies and stages of maturity (what we know / can't do)
- AI players
- AI trends
- What can AI do for my industry? Use cases?

Macro

- How do you develop an effective AI strategy?
- What are my competitors doing in terms of AI and projects?
- How can you enhance your employer brand to attract a pool of AI talent?
- How can I communicate effectively about AI in my company?
- What impact will AI have on employment in my sector?
- What are the ethical problems of AI?
- What overall budgets should be allocated?
- What national strategy?

Day 2

Micro

- What are the top value drivers / bread points today?
- How do you build a machine learning and deep learning algorithm?
- How to build an AI project and deployment method?
- What budget should be allocated to a development project?

- How to work with AI service companies (POCs)? Buy or build? Time/value/market share ratio? How to judge the quality of partners?
- What talent do we need / Train vs. Recruit?
- Best Practices

Complementary module - Technologies & Issues (2 additional days)

AI technology

- Brute force, used in games such as chess
- Statistical methods, Bayesian
- Symbolic AI, expert systems and rule and inference engines
- Fuzzy logic as a means of refining expert systems
- The concept of neural networks or biomimicry
- Machine learning and the different components of supervised and unsupervised learning
- Reinforcement learning
- Classification, regression, predictive models
- Deep learning
- Major application development tools: TensorFlow, PyTorch, SparkML, Azure Machine Learning...
- The strategic role of data and knowledge bases in AI applications

Generic applications of artificial intelligence

- Speech recognition: market solutions with Amazon Alexa, Apple Siri, Google Assistant, Microsoft Cortana, Nuance
- Language processing: machine translation, automatic summary production, language generation automatic text processing
- Conversational robots: the chatbot craze in customer services
- Still image and video recognition, especially in search engines
- Automatic segmentation and its marketing applications
- Detection of fraud, churn and other abnormal customer behavior
- Prediction methods. Content recommendation
- Cybersecurity: detecting suspicious activity
- Robotics: the main robots on the market (public services, homecare for the elderly, deliveries, drones), Boston Dynamics robots

Business applications

- In healthcare: for genomics, diagnostic aids, medical imaging and the invention of new therapies. The role of genotype/phenotype cross-statistics. The future of simulation in biotech

- In the automotive sector, with assisted and autonomous driving and its major challenges. The role of LiDAR in autonomous vehicles. The example of Mobileye and its cloud-based road mapping architecture.
- In industry: predictive maintenance, robots and PLCs, artificial vision, simulation, etc. production methods (PLM).
- In marketing, sales and customer relations: AI for better targeting customers, upselling and cross-selling, detecting trends, the mood of the market and customers? Social network sentiment analysis and detection of weak signals
- In finance: for investment, risk assessment, bank fraud detection, and even taxes
- In the legal professions: changes in the professions of lawyer, notary and judiciary
- In media and content: machine learning applied to the control of video game scenarios, automated journalism, content recommendation, virtual and augmented reality, etc.
- In the public sector: particularly in security and intelligence

The major players

- Marketing artificial intelligence solutions (product, project and cloud models)
- Consumer and corporate approaches
- Setting up an artificial intelligence project
- The main AI startups and their segmentation (field, business models, financing)
- The AI strategy of other major market players: Google, Facebook, Microsoft...
- France and artificial intelligence: where do we stand?
- The role of open source and open data in AI, and that of the cloud?

Artificial intelligence in society

- AI and robotics will transform jobs in the future
- The impact of AI on the future of employment
- The jobs least and most at risk
- Ways to avoid being "robotized" (form of education, developing employee skills)
- The limits of AI predictions
- AI in politics: doing politics differently
- Future regulations on artificial intelligence, privacy, data protection and taxation of robot labor

AI, the enterprise and the IT department

- Follow the AI market, its evolution and its applications to innovate
- The first projects to be considered: their specific features
- AI specialists: where are they trained?
- Get organized to "sell" these projects internally
- Evaluating the effectiveness of AI in practice

Companies concerned

This training course is aimed at both individuals and companies, large or small, wishing to train their teams in a new advanced computer technology, or to acquire specific business knowledge or modern methods.

Positioning on entry to training

Positioning at the start of training complies with Qualiopi quality criteria. As soon as registration is finalized, the learner receives a self-assessment questionnaire which enables us to assess his or her estimated level of proficiency in different types of technology, as well as his or her expectations and personal objectives for the training to come, within the limits imposed by the selected format. This questionnaire also enables us to anticipate any connection or security difficulties within the company (intra-company or virtual classroom) which could be problematic for the follow-up and smooth running of the training session.

Teaching methods

Practical course: 60% Practical, 40% Theory. Training material distributed in digital format to all participants.

Organization

The course alternates theoretical input from the trainer, supported by examples, with brainstorming sessions and group work.

Validation

At the end of the session, a multiple-choice questionnaire verifies the correct acquisition of skills.

Sanction

A certificate will be issued to each trainee who completes the course.