

# General Offer for companies

*Entry-level activities to do before specialised trainings:*

- Visit to the AIXC
- Introductory lecture on AI

## **40' Introductory lecture on AI**

The objective of this talk is to demystify AI and build a shared base level of understanding in your organisation. Inspiring examples will be given on the possibilities and limits. Special attention will be given to the role of humans, and where they outperform computers. No technical background knowledge is needed. This can be delivered on your corporation premises at the price of €500 (excluding traveling and accommodation) or online.

## **2h seminar + Q&A, tailored to your organisation**

We include examples from your sector and a 20-minute Q&A. The topic and technical level of this talk will be customised to your participants' needs and will be agreed upon beforehand with you. This can be delivered at the price of €2000 (excluding traveling and accommodation). The seminars can be delivered on your corporate premises or at the AI Experience Centre (AIXC) on our campus for an extra €1000 euros. If it is the latter, 2 demos of relevant AI demonstrators are included. You may choose from the topics below.

Topic	Description
AI Demystified	What is AI? How does it work? What are opportunities and challenges? What are the trends?
Legal Aspects of AI	Introduction to legal frameworks and issues.
Introducing AI in my organisation	Is your organisation ready for AI? What skills do you need to acquire? What solutions are available in the market? How to scope and organise an AI project and manage risk?

Technology walk-of-fame / AI tech drive	Overview of technologies, explained to non-technical audience, with success stories. We will introduce Deep learning, machine learning, Reinforcement Learning, Natural Language Processing (NLP), Recommender Systems, Logic, Search, Clustering, Bayesian Inference, Graph algorithms, Emergence & Multi-agent systems and Data mining at a conceptual level.
AI applications	Overview of AI technology with examples and challenges in domain verticals. One can choose between: AI in education / AI in marketing / AI and creativity / AI in robotics / AI in cybersecurity.
Human vs Machine	Where do machines outperform humans? What makes humans so unique? What are challenges of AI, and how can humans and machines complement each other?
Show me the data	In this seminar we will dive deeper into the role of data. We will discuss how to define objectives, touch on data governance, management, operations, visualisation and representation.
History & roots of AI	AI is an intrinsically interdisciplinary field. We will introduce its roots, discuss landmark papers, big ideas and philosophy behind AI.

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For more in-depth learning, we propose the following:

## Hands-On Technical Training

This is targeted to people who already have some basic Python programming skills. It is centred around concrete use-cases in different verticals (FinTech, marketing, hospitality, web & media, games, etc.) The participant will learn how to implement either recommender systems, or machine learning algorithms or time series prediction or build decision support-systems using reinforcement learning agents or implement multi-agent algorithms in concrete use-cases. This training is an intensive 6-week program for groups of maximum twelve people and is delivered for the price of €10.000 per group.

## Tutorials for your technical staff

Introduction of one specific technology behind AI to an audience with a technical background (CS/EE). This includes a combination of theory & hands-on exercises. This is a two-day program, for groups of maximum five people and is delivered for the price of €5000 (excl. VAT).

The following topics are currently available: Machine Learning, Deep Learning, Reinforcement Learning, Search algorithms, Natural, Language Processing, Data mining, Logic and knowledge representation, Recommender systems.

Topic	Description
Planning, graphs and search algorithms	Despite its maturity, graph and state-space search algorithms remain a very powerful paradigm to approach problem-solving by computers. As such, it is still widely used, though not always visibly, in games, route-planning, and for the optimisation of operations. In this tutorial, we'll cover uninformed search algorithms like depth-first and breadth-first, as well as informed search algorithms based on heuristics. Examples will be given to develop the learner's ability to identify the best approach and design appropriate heuristics. We will also discuss related graph & planning algorithms.

<p>Natural Language Processing</p>	<p>In this tutorial, we will introduce the most important concepts and methods from Natural Language Processing and Information Retrieval. We will cover parsing, indexing techniques, semantic representations like vector spaces and word embeddings, query expansion and algorithms like classification, clustering and topic modelling. The above techniques will be applied and illustrated using examples from different domains such as document classification, search or chatbots.</p>
<p>Data mining</p>	<p>In the early 90's, during the second AI winter, many AI techniques were rebranded as data mining or knowledge discovery in databases (KDD). These methods, successfully applied in many businesses like retail and science, formed the basis of many data-driven evolutions that are now part of the "Machine Learning" hype. In this tutorial, we will cover the CRISP-DM data mining process, and several techniques, including clustering, anomaly detection, summarisation/visualisation, and association rule learning, and frequent itemset mining.</p>
<p>Logic and constraint programming</p>	<p>Many tasks in Artificial Intelligence require reasoning over human-understandable symbols. This tutorial will introduce the main symbolic representation of knowledge, being logic, and explain how reasoning using formal logic functions. Also, the topic of constraint programming will be introduced, with a particular focus on the translation of business problems into formalised descriptions that can be solved using so-called advanced AI logic / constraint solvers.</p>
<p>Recommender systems</p>	<p>Recommender systems are one of the big success stories of AI. In this session you will learn about content-based user/item based and utility-based systems. Matrix Factorization, context-aware systems, collaborative filtering, hybrid architectures and evaluation techniques will be explained in detail. Though they seem simple in theory, recommender systems are hard to implement in practice. To get a feel of the complexity, we will complement theory with exercises on realistic datasets</p>

## **Research in residence**

This offer is specifically for data scientists and AI Engineers working in R&D. For half a day (4 hours), they are allowed a backstage pass in the lab, where they will be able to ask a researcher from the lab all their questions about a specific solution. The researcher will assist them in going through the phases of hypothesis, experimentation and conclusion. If there is a skill gap, the researcher will give a speed training on the missing skill and provide reading material to follow-up (e.g. algorithmic programming). This service is delivered for the price of 1200€ per day.

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Finally, here are some other peripheral activities we propose:

### **Consulting Call**

If in need of expert opinion about Artificial Intelligence, or a step to take in implementing it in a project, we offer consulting services as well. The format is one-on-one teleconferencing calls, between an AI researcher from the lab and the client. The question must be asked at least 3 days before, to allow the expert to prepare a detailed and nuanced answer. This service is mostly target to executives and middle-management professionals and is delivered at an hourly rate of 450€ or €250 without preparation (excl. VAT).

### **Half-day visit to the AI Experience Center (AIXC)**

The AIXC is a part of the lab that is open to external parties. It is located on our Brussels campus and houses several AI installation demos produced by our lab throughout the years. Its purpose is to engage people with the technology and demystify it through contact. A researcher from the lab will provide light explanations when necessary. Available for groups of max. 20 people at a time, 4 hours each time. This can be delivered at the price of €450 (excl. VAT and demos). This allows for ample time to visit up to 8 demos.

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All prices are exclusive VAT. Several of the sessions above can be extended to a full day session, where more advanced topics can be taught.