Applied AI-Based Data Science

Course Description & Objectives

Recently, the Data Science paradigm has raised the attention of the academic world and the industry. Of special interest to industry is the fast transition of AI-based Data Science from a narrow research area in a limited number of academic labs to a key topic in the business world. In a couple of years, adopting and successfully using AI capabilities has become a requirement for company's competitive advantage. One of the biggest challenges in accomplishing this goal is the deficit of educated specialists that know how to apply Data Science, especially based on AI methods, for value creation.

The course will fill this gap by clear explanations of the main principles of the different AI approaches with less of a focus on theoretical details, by offering a methodology for developing and deploying practical solutions to real-world problems, and by suggesting a roadmap for how to introduce these technologies into an organization. The broad list of selected AI approaches, discussed in the course, includes: machine learning (neural networks and Support Vector Machines – SVM), deep learning (key deep neural network structures and image processing), decision trees (random forest, gradient boosting trees), evolutionary computation (genetic programming), and other technologies (intelligent agents, chatbots, and Natural Language Processing – NLP). The course will illustrate the business benefits of these methods with relevant use cases. It will give the students a guidance on how to evaluate the organization readiness for AI and introduce AI-based Data Science into an organization.

The key objective of this course is to prepare the students for how to explore the big potential of AI-based Data Science for successful practical applications. This course is different from the majority of Data Science or AI-related courses, prepared by university professors, that focus on theoretical description of the methods and the corresponding programming skills. This unique course explains the practical approach of applying AI-based Data Science and is prepared by a leading international expert in this area based on his experience from several large US companies. It is based on his recent book "Applying Data Science: How to Create Value with Artificial Intelligence", published by Springer in 2020 (https://www.amazon.com/Applying-Data-Science-Artificial-Intelligence/dp/3030363740/ref=sr_1_1?keywords=Arthur+KOrdon&qid=1583253924&s=books&sr=1-1).

There are no special technical or programming requirements for students to take this course.

Highlights

Students taking the Applied Artificial Intelligence course will:

- Understand the principles of key AI methods from application perspective
- Select and integrate the right AI methods for solving real-world problems
- Explore and recognize the competitive advantages of applied AI
- Learn how to find and define real-world problems appropriate for AI
- Learn the methodology how to solve real-world problems with AI
- Develop a roadmap how to introduce AI in an organization.