Computer Science

Study branch: Artificial Intelligence

Generated: 16. 11. 2026

Faculty	Faculty of Electrical Engineering and Computer Science
Type of study	Follow-up Master
Language of instruction	English
Code of the branch	S01
Regular period of the study	2 years
Cost	50,000 CZK per semester
Department	Department of Computer Science
Coordinator	prof. RNDr. Václav Snášel, CSc.

About study programme

The Artificial Intelligence specialization is the ideal choice for those who want to gain an in-depth understanding of modern technologies and actively participate in their development. Studying this specialization will systematically guide you through the world of artificial intelligence, machine learning, and data analysis—areas that are fundamentally shaping the digital society and the future direction of technology today. You will gain a solid theoretical foundation and the practical skills needed to design, implement, and evaluate intelligent systems, with an emphasis on current trends in software and hardware development. During your studies, you will learn to work with different types of data, understand their nature, and master the appropriate methods for their processing and analysis. You will become familiar with the principles of neural networks, deep learning, and modern tools and libraries that are used in practice today. You will be able to effectively apply this knowledge in areas such as process automation, image processing, natural language, or the development of intelligent software solutions. Emphasis is placed not only on the algorithms themselves, but also on the interpretation of results, their visualization, and meaningful presentation. It will also prepare you to work in multidisciplinary teams and teach you how to clearly communicate the results of your work to both experts and the general public. An integral part is critical thinking about the ethical and social implications of using artificial intelligence. This will enable you to make responsible decisions and develop long-term skills in a dynamic and rapidly changing field. Graduates find employment in technology companies, research institutions, and academia—as data analysts, machine learning model developers, neural network specialists, or researchers. Studying Artificial Intelligence will open the door to a professional career that has a future, meaning, and real impact.

Graduate's employment

Graduates specializing in Artificial Intelligence will find employment primarily in technology companies, research organizations, and institutions involved in data processing and analysis. They can work as data analysts, machine learning model developers, neural network specialists, artificial intelligence researchers, or consultants for the deployment of intelligent systems. Thanks to a combination of theoretical knowledge and practical skills, they will be prepared to design and implement advanced solutions using artificial intelligence in areas such as image and natural language processing or the development of intelligent software systems. They will find employment in both the private sector and in research and academic institutions.

Study aims

Choosing the Artificial Intelligence specialization allowed the graduate to focus on selected areas as an expert in artificial intelligence, machine learning, and data analysis. As part of this specialization, the graduate deepened their knowledge in the areas of intelligent system design and implementation, data processing and evaluation methods, neural networks, and deep learning. The knowledge they gained enables them to effectively apply these approaches in various areas of computer science, such as process automation, image and natural language processing, and the development of intelligent software systems.

Graduate's knowledge

Graduates of the Artificial Intelligence specialization have expanded their knowledge and skills in the field of artificial intelligence and machine learning during their master's studies. They are able to distinguish the nature of the data being examined, understand the requirements for its processing, and design and use appropriate methods for its analysis. At the engineering level, they can explain the principles of selected methods, parameterize them, and adapt them to the needs of the tasks at hand, and are able to identify their strengths and weaknesses. Graduates have the potential to implement selected machine learning methods with regard to current trends in the development of software and hardware components. They are able to communicate and present the methods used and the results of their analyses in an appropriate manner.

Graduate's skills

Graduates of the Artificial Intelligence specialization are able to independently design, implement, and evaluate machine learning algorithms and models. They can process, analyze, and interpret large data collections using modern tools and libraries. Graduates are also able to apply artificial intelligence methods to solve practical tasks in image recognition and natural language processing. They master the principles of data preparation, visualization, and interpretation of results. They are able to collaborate effectively within research and development teams and present the results of their professional work.

Graduate's general competence

Graduates of the Artificial Intelligence specialization are able to communicate effectively within multidisciplinary teams comprising experts from various fields, such as data analytics and statistics. They can present the results of their work in a comprehensible manner to both professional and lay audiences and defend their chosen approaches and methodologies. They are able to critically assess the quality and ethical aspects of the use of artificial intelligence, take into account the social impacts of technology, and make responsible decisions. They are proficient in working with professional resources, are familiar with current trends, and are prepared to continue their education in this rapidly developing field.

Professions

- AI solutions architect
- AI engineer
- Machine learning engineer
- MLOps engineer
- NLP engineer
- Intelligent automation engineer
- AI product specialist
- Researcher
- Software architect
- Computer vision engineer
- Responsible AI & ethics specialist
- Software developer
- Data engineer (AI-focused)
- Academic staff member
- Deep learning specialist
- Data scientist
- Data analyst
- Machine learning model developer
- R&D engineer
- AI consultant

Hard skills

- Python
- Natural language processing (NLP)
- Prediction
- Machine learning
- Data classification
- Image processing (computer vision)
- Model evaluation
- Processing of unstructured data
- Ethical and social aspects of AI
- Clustering
- Feature engineering
- Explainable AI (XAI)
- Big data and distributed processing
- Algorithms and data structures
- Deep learning
- Cloud platforms
- Data analysis
- Time series
- Neural networks
- MLOps (including deployment)

Study curriculum

- form Full-time (en)