PROFESSIONAL EDUCATION

SUMMER 2023

MACHINE LEARNING FOR BIG DATA AND TEXT PROCESSING: ADVANCED

DATES	DURATION	FORMAT	FEE	CEUS
June 7–9, 2023	3 Days	On Campus	$3,500	1.9

Examine how the latest tools, techniques, and algorithms driving modern and predictive analysis can be applied to produce powerful results.

Machine learning methods drive much of modern data analysis across engineering, science, and commercial applications. For example, search engines, recommender systems, advertisers, and financial institutions employ machine learning algorithms for content recommendation, predicting customer behavior, compliance, or risk.

This course looks at how the latest tools, techniques, and algorithms driving modern and predictive analysis can be applied in different fields, even when using unstructured data. You'll gain insights about the underlying tools, what kinds of problems they can/cannot solve, how they can be applied effectively, and what issues are likely to arise in practical applications, particularly in the healthcare field.

EARN A PROFESSIONAL CERTIFICATE

This course may be taken individually or as part of the ***Professional Certificate Program in Machine Learning & Artificial Intelligence.***

WHO SHOULD ATTEND

This course is designed for people with working knowledge and experience with machine learning. Those who attend should have a basic understanding of the essential mathematical concepts and theories used in the field.

- **Machine learning professionals** who would like to explore the latest AI tools techniques
- **Data scientists and engineers** who want to acquire tools for solving machine learning problems related to scaling, implementation, and other practical considerations
- **Statisticians and mathematicians looking to** build on their theoretical knowledge with advanced machine learning algorithms and applications
- **Physicists and other research scientists** who want to transition to careers in the tech sector
- **Executives, managers, and other leaders** who want a deeper understanding of the opportunities, costs, and likely performance hurdles in current machine learning trends

Participants should have an undergraduate degree in computer science or another technical area such as statistics, physics, electrical engineering, etc., with exposure to vectors and matrices, basic concepts of probability. A high-level understanding of programming (thinking in terms of programs) is also beneficial.

professional.mit.edu/aml

LEARNING OUTCOMES

- Understand broad opportunities for automation with machine learning
- Outline key aspects of practical problems that are likely to impact performance
- Explore modern natural language processing tools, formulations, and problems
- Be able to discuss scaling issues (amount of data, dimensionality, storage, and computation)
- See through the process of applying machine learning methods in practice, foresee likely hurdles and possible remedies
- Grasp what predictive analytics often does not provide
- Understand current machine learning trends and opportunities that they bring

LEAD INSTRUCTORS

Regina Barzilay

Regina Barzilay is a Delta Electronics professor in the Department of Electrical Engineering and Computer Science and a member of the Computer Science and Artificial Intelligence Laboratory at the Massachusetts Institute of Technology.

Tommi Jaakkola

Tommi Jaakkola is a professor of Electrical Engineering and Computer Science and also a member of the Computer Science and Artificial Intelligence Laboratory. His work pertains to inferential, algorithmic and estimation questions in machine learning, including large scale probabilistic distributed inference, deep learning, and causal inference.

Stefanie Jegelka

Stefanie Jegelka is an X-Consortium Career Development Assistant Professor in the Department of Electrical Engineering and Computer Science at MIT, where she is a member of CSAIL, and affiliated with IDSS.

Teaching Methodology

The certificate curriculum is grounded in the spirit of MIT's motto, "Mens et Manus," or "mind and hand," which combines theoretical instruction with hands-on methods of discovery.

INTERACTIVE LECTURES

HANDS-ON EXERCISES

GROUP PROJECTS

SUPPLEMENTAL RESOURCES

PROFESSIONAL EDUCATION

ABOUT MIT PROFESSIONAL EDUCATION

For 70 years, MIT Professional Education has been providing technical professionals worldwide a gateway to renowned MIT research, knowledge, and expertise, through advanced education programs designed specifically for them. In addition to industry-focused, two-to-five-day live virtual and on-campus courses through Short Programs, MIT Professional Education offers professionals the opportunity to take online and blended learning courses through Digital Plus Programs, attend courses abroad through International Programs, enroll in regular MIT academic courses through the Advanced Study Program, or attend Custom Programs designed specifically for their companies. For more information, please visit **professional.mit.edu**.