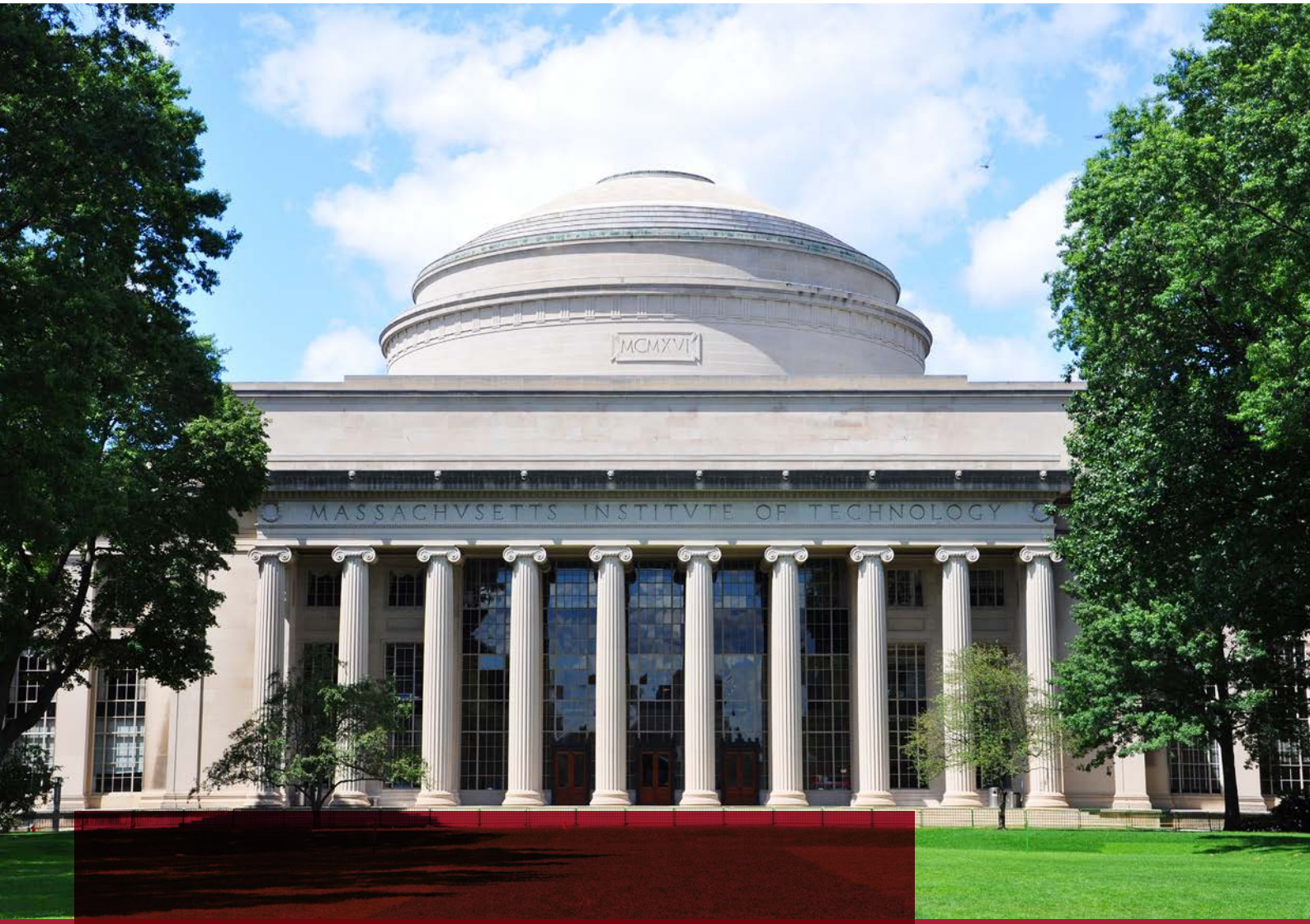
PROFESSIONAL EDUCATION

Digital **Plus**+ Programs



NO CODE AI AND MACHINE LEARNING:

BUILDING DATA SCIENCE SOLUTIONS

Learn to make AI-backed business decisions with the 12-week online program delivered by MIT Faculty

ABOUT MIT PROFESSIONAL EDUCATION

A leader in engineering and technology education for 70 years, MIT Professional Education provides world-class learning opportunities for professionals who are looking to advance their careers, creatively address complex problems, and build a better future. Our blend of traditional classroom instruction with leading online technology enables better learning outcomes, while promoting engagement and collaboration.

MISSION

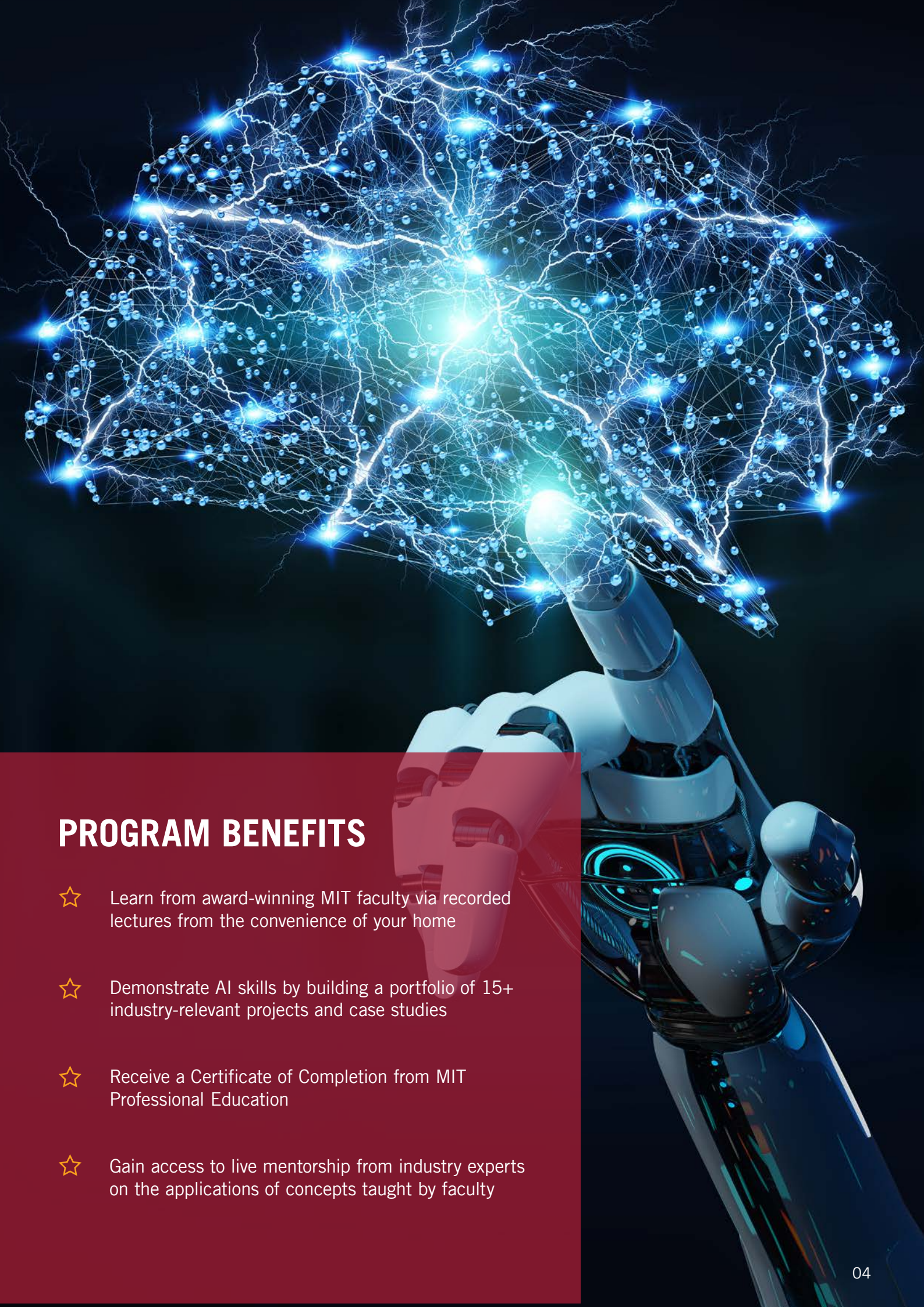
MIT Professional Education provides a gateway to renowned MIT research, knowledge and expertise for working professionals engaged in science and technology worldwide, through advanced education programs designed for them. Central to MIT's vision, MIT Professional Education fulfils the mandate to connect practitioner-oriented education with industry, and to incorporate industry feedback and knowledge into MIT education and research.

ABOUT THE PROGRAM

Artificial Intelligence and Data Science are now a force to reckon with. AI will boost global GDP to $15.7 trillion by 2030, according to PwC. This makes professionals with AI skills highly valuable to organizations across industries. In order to help you unlock the power of AI in business, MIT Professional Education offers the No Code AI and Machine Learning: Building Data Science Solutions Program.

In this 12-week program, you will be able to decode the AI landscape by learning the theory and practical applications of supervised and unsupervised learning, time-series analysis, neural networks, recommendation engines, regression, computer vision, and more. With the no-code approach, you will learn to leverage the power of AI and Data Science without having to write a line of code.

Upon successful fulfillment of requirements, you will receive a Certificate of Completion from MIT Professional Education at the end of the program.



PROGRAM BENEFITS

- Learn from award-winning MIT faculty via recorded lectures from the convenience of your home
- Demonstrate AI skills by building a portfolio of 15+ industry-relevant projects and case studies
- Receive a Certificate of Completion from MIT Professional Education
- Gain access to live mentorship from industry experts on the applications of concepts taught by faculty

WHO IS THIS PROGRAM FOR?

- Business leaders who want to learn how AI & ML products can be built
- Operations and Product Managers interested in quickly getting a product off the ground
- Entrepreneurs, Consultants, and Solution-builders who want the ability to quickly build working prototypes or early products without needing large data teams
- Working professionals aspiring to lead AI and data-driven teams and build innovation initiatives using AI technologies

AFTER THIS PROGRAM YOU WILL BE ABLE TO

- Develop an informed view on where AI & ML can be used effectively.
- Become familiar with the entire lifecycle of AI & ML applications.
- Explore the tools and techniques necessary to quickly get a prototype or the first version of an AI or ML product/solution up and running.
- Build on top of existing AI products and services rather than writing code or training models from scratch.
- Understand AI & ML techniques and how you can harness their power.

PROGRAM CURRICULUM

Module 1 — Week 1

Introduction to the AI Landscape

- Objective: To offer a general overview of the four blocks upon which this No Code AI and Machine Learning Program is focused.
  - Understanding the data: What is it telling us?
  - Prediction: What is going to happen?
  - Decision Making: What should we do?
  - Causal Inference: Did it work?

BLOCK 1: Structured Data to DS Applications

Module 2 — Week 2

Data Exploration - Structured Data

- Objective: To learn the basic principles of applying data exploration techniques, such as dimensionality projection and clustering on structured data.
  - Asking the right questions to understand the data
  - Understanding how data visualization makes data clearer
  - Performing Exploratory Data Analysis using PCA
  - Clustering the data through K-means & DBSCAN clustering
  - Evaluating the quality of clusters obtained

Module 3 — Week 3

Prediction Methods - Regression

- Objective: To understand the concept of linear regression and how it can be used with historical data to build models that can predict future outcomes.
  - The idea of regression and predicting a continuous output
  - How do you build a model that best fits your data?
  - How do you quantify the degree of uncertainty?
  - What do you do when you don't have enough data?
  - What lies beyond linear regression?

Module 4 — Week 4

Classification

- Objective: To understand the concept of classification and understand how tree-based models achieve prediction of outcomes that fall into two or more categories.
  - Understand the Decision Tree model and the mechanics behind its predictions
  - Learn to evaluate the performance of classification models
  - Understand the concepts of Ensemble Learning and Bagging
  - Learn how Random Forests aggregate the predictions of multiple Decision Trees

PROGRAM CURRICULUM

BLOCK 2: Unstructured Data to DS Applications

Module 5 — Week 5

Data Exploration - Unstructured Data

- Objective: To understand the concept of Natural Language Processing, how natural language represents an example of unstructured data, the business applications for this kind of data analysis, and how data exploration and prediction are performed on such natural language data.
  - Understand the concept of unstructured data, and how natural language is an example
  - Understand the business applications of Natural Language Processing
  - Learn the techniques and methods to analyze text data
  - Apply the knowledge gained towards the business use case of sentiment analysis

Module 6 — Week 6

Recommendation Systems

- Objective: To understand the idea behind recommendation systems and potential business applications.
  - Learn the concept of recommendation systems and potential business applications
  - Understand the sparse data problem that necessitates recommendation systems
  - Learn about potentially simple solutions to the recommendation system
  - Understand the ideas behind Collaborative Filtering Recommendation Systems

Learning Break — Week 7

BLOCK 3: Temporal Data to DS Applications

Module 7 — Week 8

Data Exploration - Temporal Data

- Objective: To understand the key concept of temporal data, its differences from structured and unstructured data, the idea behind Time Series Forecasting and the preprocessing required to obtain stationarity in Time Series.
  - Understand temporal data and how it represents a different data modality
  - Understand the idea behind Time Series Forecasting
  - Learn about the concept of Stationary Time Series, testing for stationarity and conversion techniques to transform non-stationary time series into stationary

Module 8 — Week 9

Forecasting Systems

- Objective:
  To understand the ideas behind autocorrelation of time series instances and methods for time series forecasting such as AR, MA and ARMA.

PROGRAM CURRICULUM

BLOCK 4: Spatial Data to AI Applications

Module 9 — Week 10

Prediction Methods - Neural Networks

- Objective: To understand the ideas behind Neural Networks, their introduction of non-linearities into the encoding and predictive process through a hierarchical structure, and the various steps involved in their forward propagation and back propagation cycle to minimize prediction error.
  - Understand the key concepts involving Neural Networks
  - Learn about the encoding process taking place in the neural network layers, and how non-linearities are introduced
  - Understand how forward propagation happens through the layered architecture of neural networks and how the first prediction is achieved
  - Learn about the cost function used to evaluate the neural network's performance, and how gradient descent is used in a back propagation cycle to minimize error
  - Understand the key optimization techniques used in gradient descent

Module 10 — Week 11

Computer Vision Methods

- Objective: To understand how images represent a spatial form of unstructured data and hence, a different data modality, how the Convolutional Neural Network (CNN) structure achieves generalized encoding abilities from image data and achieve an understanding of what CNNs actually learn.
  - Learn about spatial concepts of images such as locality and translation invariance
  - Understand the working of filters and convolutions, and how they achieve feature extraction to generate encodings
  - Learn about how these concepts are used in the structure of Convolutional Neural Networks (CNNs) and understand what CNNs actually learn from image data

Block 5: AI in Production

Module 11 — Week 12

Workflows and Deployment

- Objective: To obtain additional perspective on how the same takeaways from the conceptual modules discussed prior have been applied in various business scenarios and problem statements by industry leaders, who have achieved success in practical applications of Data Science and AI.

PROGRAM FACULTY

Devavrat Shah

Director, Statistics and Data Science Center (SDSC) at MIT
Professor, Electrical Engineering & Computer Science (EECS) at MIT, PhD (Stanford University)

Munther Dahleh

Director, MIT Institute for Data, Systems and Society (IDSS)
William A. Coolidge Professor, Electrical Engineering & Computer Science (EECS) at MIT, PhD (Rice University)

Caroline Uhler

Henry L. & Grace Doherty Associate Professor, Institute for Data, Systems and Society (IDSS) and Dept. of Electrical Engineering & Computer Science (EECS) at MIT, PhD (UC Berkeley)

John N. Tsitsiklis

Clarence J. Lebel Professor, Dept. of Electrical Engineering & Computer Science (EECS) at MIT, Professor, Laboratory for Information and Decision Systems (LIDS) at MIT, PhD (MIT)

Stefanie Jegelka

X-Consortium Career Development Associate Professor, Electrical Engineering Computer Science (EECS) at MIT, Member, Computer Science & Artificial Intelligence Laboratory (CSAIL) at MIT, PhD (ETH Zurich)

Program faculty are subject to change.

PROGRAM MENTORS

The program coaches you to work on hands-on, industry-relevant projects by Artificial Intelligence and Machine Learning experts via live and personalized mentored learning sessions to give you a practical understanding of core concepts.

Shannon Schlueter

Co-Founder & CTO,
Calido

Bradford Tuckfield

Founder,
Kmbara

Luciano Tozato

Artificial Intelligence Cloud Engineer,
Google

Alina Rivilis

AVP Data Science and Big Data,
IGM Financial Inc.

Selcuk Baran

Research Science Manager,
Amazon Web Services

Vaibhav Verdhan

Analytics Leader,
Global Advanced Analytics,
AstraZeneca

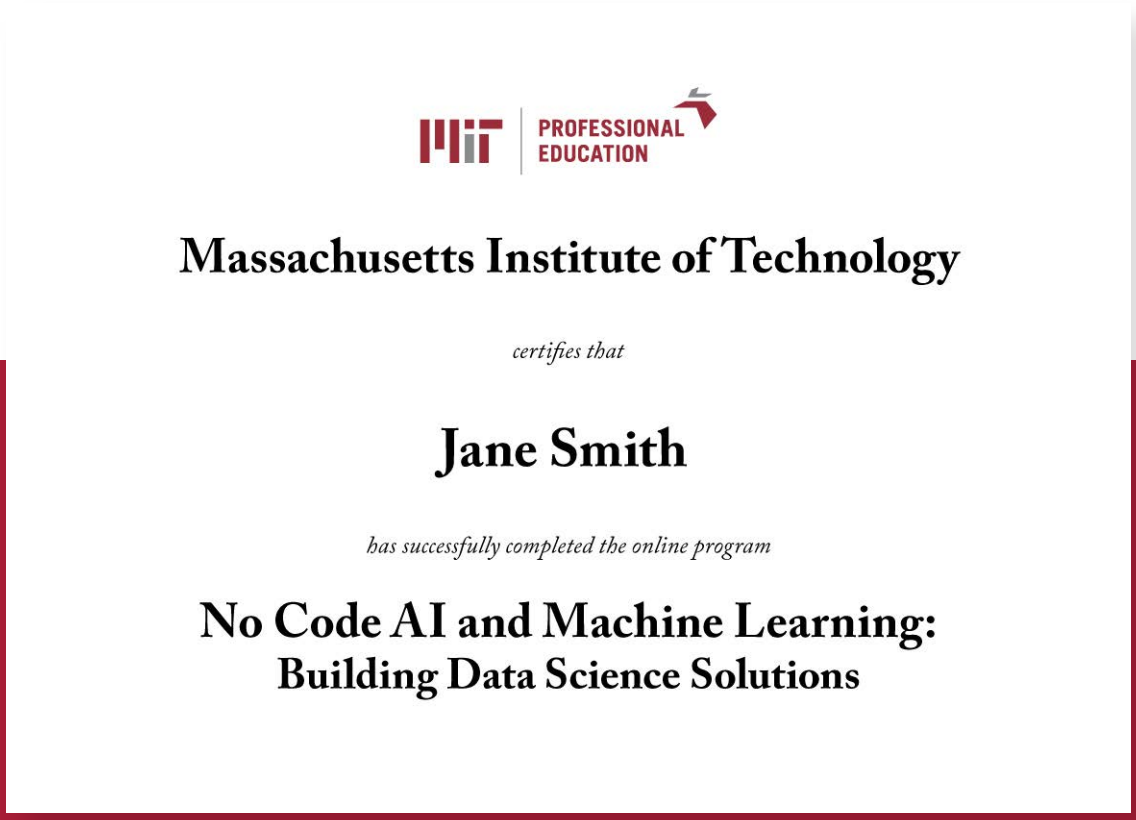
Joel Kowalewski

CTO,
Sensorygen

PROGRAM MANAGER
YOUR PERSONAL GUIDE

Your dedicated Program Manager, provided by Great Learning, will be your single point of contact for all academic and non-academic queries in the program. They will keep track of your learning journey, give you personalized feedback, and the required nudges to ensure your success.

CERTIFICATE OF COMPLETION



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APPLICATION PROCESS

STEP-1

Application Form

Register by completing the online application form.

STEP-2

Application Screening

Your application will be reviewed to determine if it is a fit for the program.

STEP-3

Join the Program

If selected, you will receive an offer for the upcoming cohort. Secure your seat by paying the fee.

APPLICATION & FEE DETAILS

Program Duration: **12 weeks**

Weekly Commitment: **8 to 10 hours**

Fees: **USD 2500**

Start Date: **July 16, 2022**

READY TO MAKE AI-BACKED DECISIONS?

APPLY NOW

Contact Great Learning for more information about MIT Professional Education's No Code AI and Machine Learning Program

+1 351 300 0544 / +91 9606 053 237

ncai.mit@mygreatlearning.com

https://professionalonline2.mit.edu/no-code-artificial-intelligence-machine-learning-program

In Collaboration With

Great Learning

MIT Professional Education is collaborating with online education provider Great Learning to offer No Code AI and Machine Learning: Building Data Science Solutions. This program leverages MIT's leadership in innovation, science, engineering, and technical disciplines developed over years of research, teaching, and practice. Great Learning collaborates with institutions to manage enrollments (including all payment services and invoicing), technology, and participant support.