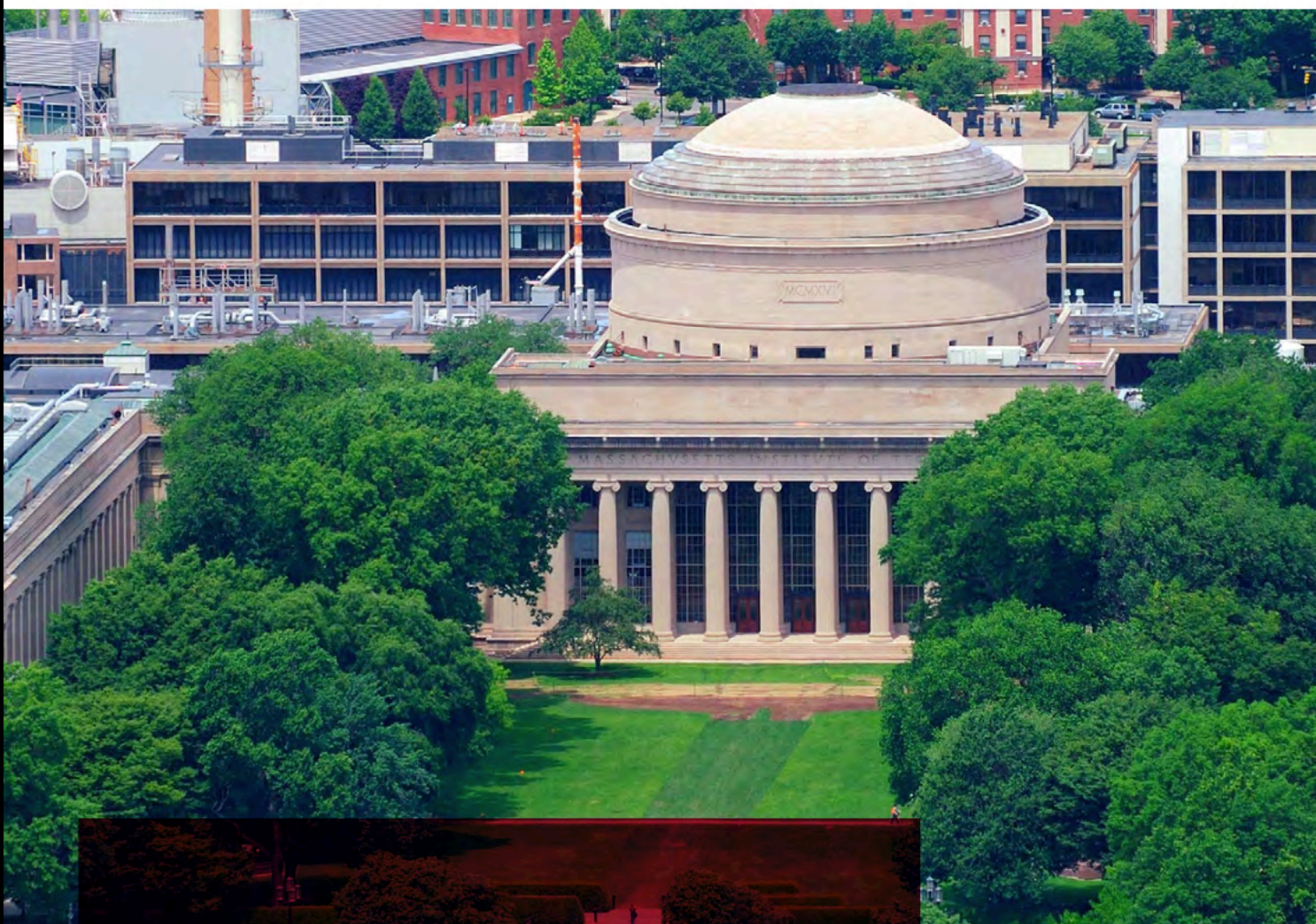




NO CODE AI AND MACHINE LEARNING: BUILDING DATA SCIENCE SOLUTIONS

**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 fulfills the mandate to connect practitioner-oriented education with industry, and to incorporate industry feedback and knowledge into MIT education and research.





ABOUT THE PROGRAM

Most applications of evolving technologies like AI and ML are used in extracting profitable data insights. With a high adoption rate, the global AI market is set to expand at a compound annual growth rate (CAGR) of 37.3% from 2023 to 2030 (Grand View Research) - leading to a stark rise in demand and a shortage of skilled professionals. Hence, this could be the best time to learn industry-ready skills and apply them to organizational advancements.

MIT Professional Education has entered the no-code revolution with the No Code AI and Machine Learning: Building Data Science Solutions program to help professionals across fields apply AI and ML to modern data sets, build intelligent solutions and solve business problems without having to write a single line of code. Abiding by MIT’s popular “hand and mind” philosophy, the program follows a hands-on learning approach that helps you apply the concepts as you learn.

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

Duration	12 weeks (including 2 breaks)
Learning Commitment	6 - 12 hours per week
Projects	3 graded projects and 15+ case studies

WHY NO CODE?

There's a great deal of interest in learning and applying Machine Learning and AI techniques across various industries. One thing that is holding people back is the need to learn coding. Even for experienced programmers, implementing Data Science models manually using code can be slow, frustrating, and error-prone. But now, technological advances have enabled new no-code solutions. The no code approach provides the same key concepts and logical reasoning behind using AI algorithms to build Data Science solutions without requiring coding.

A few techniques you will be implementing in this program are:

- Dimensionality Reduction
- Clustering Techniques
- Supervised Learning - Regression
- Supervised Learning - Classification
- Tree-Based Models and Ensemble Techniques
- Natural Language Processing
- Recommendation Systems
- Time Series Analysis
- Deep Learning Techniques
- Computer Vision

THE NO CODE APPROACH

New no-code platforms are designed to allow various industries to create software applications and processes, that would have previously required programming, using intuitive and interactive user interfaces. With some no-code AI tools/software, users can quickly classify information, perform data analysis, and create accurate data predictions with models. These no-code platforms often include a simple user interface with drag-and-drop capabilities, allowing you to simply understand the development process and specify the underlying business logic. Here are some of the no-code tools that you will learn to use in this program-

RapidMiner makes Machine Learning processes very reliable, easy, and efficient to use with its vast number of plugins and data analysis techniques. You can do everything from providing multiple data sets to model deployment through this platform.

Ikigai is a no-code tool used to build Data Science workflows and visualizations through modular functional blocks. It helps you drag and drop to build workflows involving different data sources. This tool allows humans to make decisions and then view the results in an AI-charged dashboard/spreadsheet.

Teachable Machine enables professionals to employ cutting-edge technologies like Computer Vision and Deep Learning without having to write a single line of code. Make smart predictions with your customer data and design winning solutions. It also offers good integration with Google Drive and Google's TensorFlow Deep Learning library.

KNIME is a No Code platform for data analytics that enables visual pipeline building. It features pre-built nodes for processing, analysis, and visualization, and allows drag-and-drop pipeline construction. KNIME also has a marketplace for community-contributed extensions and integrations.



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 3+ industry-relevant projects and 15+ real-world case studies
- ☆ Enables professionals from both non-technical and technical backgrounds to build smart, AI-driven solutions using various no-code tools like RapidMiner, Ikigai, and Teachable Machine
- ☆ Upon achieving an 80% completion rate in each program module, participants will receive a Certificate of Completion from MIT Professional Education and earn 8.0 Continuing Education Units (CEUs)
- ☆ 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 solutions can be built
- Operations and Product Managers interested in quickly getting a solution off the ground
- Entrepreneurs, Consultants, and solution-builders who want the ability to quickly build working prototypes or early solutions without needing large data teams
- Working professionals from non-technical backgrounds aspiring to lead AI and data-driven teams and drive innovation using AI technologies



AFTER THIS PROGRAM YOU WILL BE ABLE TO

- ☆ Learn how to address diverse business challenges using various AI methodologies
- ☆ Gain a strong conceptual understanding of the most widely used algorithms
- ☆ Gain practical insights into various nuances involved in implementing AI solutions in the industry
- ☆ Create AI/ML prototypes, models & solutions using No-Code tools and help your organizations make data-driven decisions

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 Data Science 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

Decision Systems

- 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

Learning Break

Week 5

BLOCK 2: Unstructured Data to Data Science Applications

Module 5

Week 6

Data Exploration - Unstructured Data

- Objective: To understand the concept of Natural Language Processing and 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 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 7

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

BLOCK 3: Temporal Data to Data Science Applications

Module 7

Week 8

Data Exploration - Temporal Data

- Objective: To understand the critical concept of Temporal Data, and 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

PROGRAM CURRICULUM

Learning Break

Week 9

Module 8

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 critical optimization techniques used in gradient descent

BLOCK 4: Spatial Data to Artificial Intelligence Applications

Module 9

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 acquire an understanding of what CNNs 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 how these concepts are used in the structure of Convolutional Neural Networks (CNNs) and understand what CNNs actually learn from image data

Running Module

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 Artificial Intelligence.

PROGRAM CURRICULUM

Generative AI

- Objective: To understand how Generative AI has gotten popular in recent times, its usability in enterprise projects, how it is different from conventional AI, its evolution, and also acquire an understanding of how modern techniques like LLMs work.
 - Grasp key concepts and the history of Generative AI models
 - Be able to differentiate between Generative and Discriminative models
 - Gain an intuitive understanding of what Large Language Models are, and how tools like ChatGPT are developed
 - Stitch together different Generative AI solutions to improve your efficiency at the workplace
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Prompt Engineering

- Objective: To understand how you can use prompt engineering to improve the quality of the outputs you are getting from Generative models.
 - Learn how Generative AI and prompt engineering can be applied to analyze and extract insights from text data
 - Interact with Generative AI-powered tools efficiently using different types of prompting techniques
 - Identify & use relevant prompting techniques as per the use case at hand
 - Explore real-world examples of how organizations leverage Generative AI and prompts for various applications



PROGRAM FACULTY



Munther Dahleh

Program Faculty Director
Director, MIT Institute for Data, Systems, and Society (IDSS)



Stefanie Jegelka

X-Consortium Career Development Associate Professor, Electrical Engineering
Computer Science (EECS) at MIT



Devavrat Shah

Director, Statistics and Data Science Center (SDSC) at MIT



John N. Tsitsiklis

Clarence J. Lebel Professor, Dept. of Electrical Engineering & Computer
Science (EECS) at MIT



Caroline Uhler

Henry L. & Grace Doherty Associate Professor, Institute for Data,
Systems and Society (IDSS)

Program faculty are subject to change.

PROGRAM MENTORS

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

DEDICATED PROGRAM MANAGER FOR PROGRAM SUPPORT

Your Program Manager will guide you throughout your learning journey, ensuring you achieve your objectives. Acting as your primary point of contact, they will provide timely and appropriate support, monitor your progress, and offer the encouragement needed for your success.



LEARNER TESTIMONIALS

"Mentored learning sessions, video content and explanations are good. Excellent, deep enough but not too deep for beginners. The pre-work course and other modules document content were also very helpful as well as being very helpful to the students in the classroom."



Christian Ntsiba Gassuet

Data Engineer,
National Grid (US)

"The MIT No Code program with Great Learning is well-paced, highly engaging and extremely useful. I highly recommend this to anyone looking for a thought-provoking course that will give you the tools you need to bring a competitive edge into your workplace."



Zai Ortiz

Technical Writer,
Wizeline (US)

"The assessment really tested our knowledge on the subject and foundations along with doing a project that helped us with hands-on implementation. The key learnings for me was to understand how recommendation engines are built on e-commerce websites and how classification models can help in managing fraud for a payment firm."



Sasikanth Nagalla

Payments Risk Data Science,
Stripe (US)

CERTIFICATE OF COMPLETION



The image is for illustrative purposes only. The actual certificate may be subject to change at the discretion of MIT Professional Education.

APPLICATION PROCESS



APPLICATION & FEE DETAILS

Program Duration: **12 weeks**
Weekly Commitment: **6 to 12 hours**
Fees: **USD 2850**

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



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In Collaboration With



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.