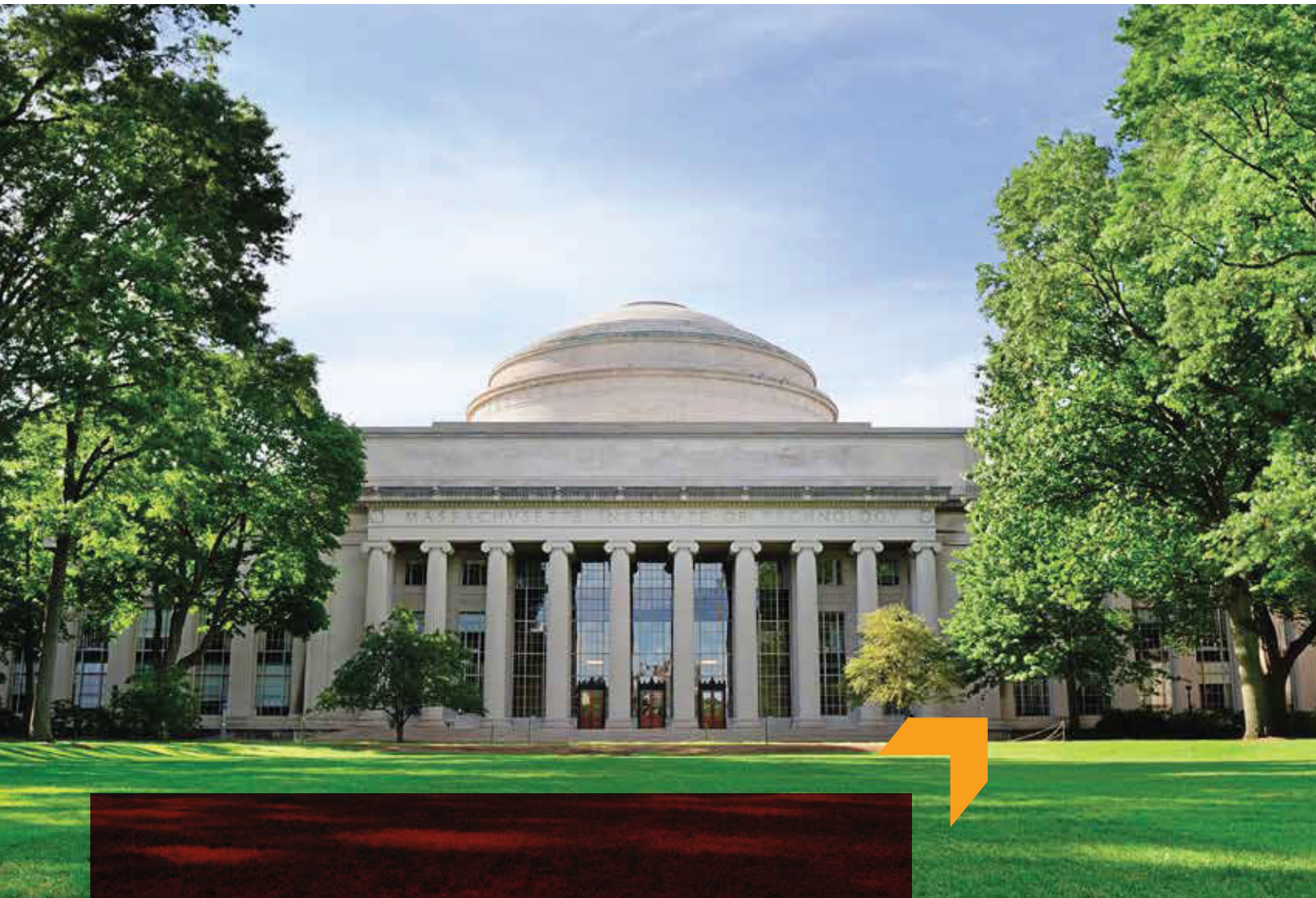




PROFESSIONAL  
EDUCATION



# APPLIED DATA SCIENCE PROGRAM

LEARN HOW TO BECOME A DATA-DRIVEN DECISION  
MAKER WITH THE 12-WEEK LIVE VIRTUAL 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

Data is getting created at a rapid pace. It is estimated that more than 2 quintillion bytes of data have been created each day in the last two years. As organizations experience an overflow of data, they are sparing no effort to extract meaningful insights to make smarter business decisions. In order to help you unravel the true worth of data, MIT Professional Education offers Applied Data Science Program, which aims to prepare data-driven decision makers for the future.

In this program that lasts for 12 weeks, you will be able to upgrade your data analytics skills by learning the theory and practical application of supervised and unsupervised learning, time-series analysis, neural networks, recommendation engines, regression, and computer vision, to name a few.

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 live virtual sessions from the convenience of your home.
- ☆ Fuel your career transition with 1-on-1 career sessions, resume and LinkedIn review, and an e-portfolio with 2 hands-on projects and a 3 week capstone project.
- ☆ Receive a Certificate of Completion from MIT Professional Education.
- ☆ Benefit from live mentorship from industry experts on the applications of concepts taught by faculty.
- ☆ Earn 3.0 Continuing Education Units (CEUs) on successful completion of the program.



# PROGRAM STRUCTURE

**This is a 12-week program**

- **2 weeks** Foundational courses on Python and Statistical Science.
- **6 weeks** Core curriculum including practical applications. Involves 58 hours of live virtual sessions by MIT faculty and industry experts, with hands-on practical applications and problem solving.
- **1 week** Project submissions.
- **3 weeks** Final, integrative capstone project.

**Please note:** The live virtual sessions with MIT faculty will be held on Mondays, Wednesdays, and Fridays at 9:30 AM EST.

# WHO IS THIS PROGRAM FOR?

- Professionals who are interested in a career in Data Science and Machine Learning.
- Professionals interested in leading Data Science and Machine Learning initiatives at their companies.
- Entrepreneurs interested in innovation using Data Science and Machine Learning.



# AFTER THIS COURSE YOU WILL BE ABLE TO

- ☆ Understand the intricacies of Data Science techniques and their applications to real-world problems.
- ☆ Implement various Machine Learning techniques to solve complex problems and make data-driven business decisions.
- ☆ Explore the realms of Machine Learning, Deep Learning and Neural Networks, and how they can be applied to areas such as Computer Vision.
- ☆ Develop strong foundations in Python, Mathematics, and Statistics for Data Science.
- ☆ Understand the theory behind recommendation systems and explore their applications to multiple industries and business contexts.
- ☆ Build an industry-ready portfolio of projects to demonstrate your ability to extract business insights from data.

# PROGRAM CURRICULUM

**The program is 12 weeks long:**

**2 weeks** for foundations

**6 weeks** of core curriculum, including practical applications

**1 week** for project submissions

**3 weeks** for a final, integrative capstone project

## Module 1

**Week 1 & 2**

### Foundations for Data Science

- Python Foundations - Libraries: Pandas, NumPy, Arrays and Matrix handling, Visualization, Exploratory Data Analysis (EDA)
- Statistics Foundations: Basic/Descriptive Statistics, Distributions (Binomial, Poisson, etc.), Bayes, Inferential Statistics

## Module 2

**Week 3**

### Data Analysis & Visualization

- Exploratory Data Analysis, Visualization (PCA, MDS and t-SNE) for visualization and batch correction
- Introduction to Unsupervised Learning: Clustering includes - Hierarchical, K-Means, DBSCAN, Gaussian Mixture
- Networks: Examples (data as network versus network to represent dependence among variables), determine important nodes and edges in a network, clustering in a network

## Module 3

**Week 4**

### Machine Learning

- Introduction to Supervised Learning -Regression
- Model Evaluation- Cross Validation and Bootstrapping
- Introduction to Supervised Learning- Classification

## Learning Break

**Week 5**



## Module 4

Week 6

### Practical Data Science

- Decision Trees
- Random Forest
- Time Series (Introduction)

## Module 5

Week 7

### Deep Learning

- Intro to Neural Networks
- Convolutional Neural Networks
- Graph Neural Networks

## Module 6

Week 8

### Recommendation Systems

- Intro to Recommendation Systems
- Matrix
- Tensor, NN for Recommendation Systems

## Learning Break

Week 9

- Time for participants to finish and submit their projects

## Module 7

Week 10-12

### Capstone Project

- Week 10: Milestone 1
- Week 11: Milestone 2
- Week 12: Synthesis + Presentation



# 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 Labo

*Program faculty are subject to change.*



# PROGRAM MENTORS

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



## **Roman Mozil**

Applied Data Scientist,  
Finning (Canada)



## **Kalle Bylin**

Product Engineer, Modyo  
(Colombia)



## **Subhodeep Dey**

Data Scientist,  
UnitedHealth Group (India)



## **Bradford Tuckfield**

Founder,  
Kmbara Data Science Consulting



## **Andrew Marlatt**

Senior Data Scientist,  
BigBear.ai Holdings (US)



## **Animesh Gupta**

Data Scientist, WestJet  
Airlines (Canada)



## **Marco De Virgilis**

Senior Actuarial Data  
Scientist, Allstate (US)



## **Matt Nickens**

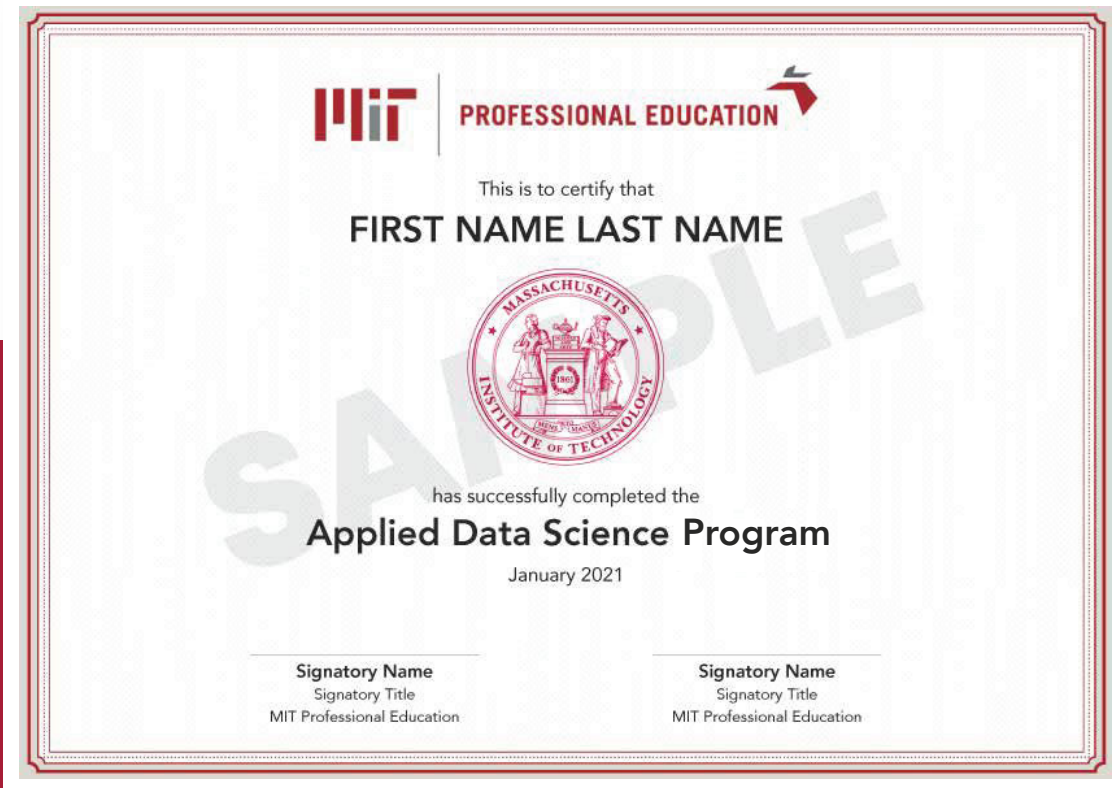
Manager- Data Science, The Walt  
Disney Studios (US)

## 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.

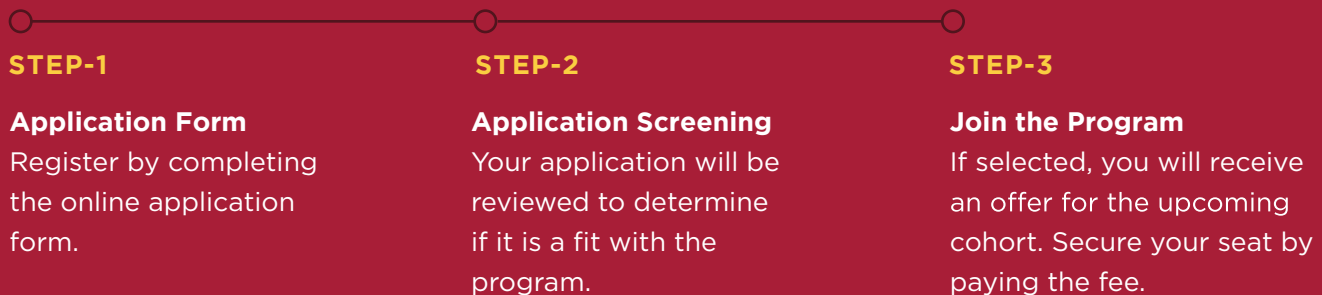


# CERTIFICATE OF COMPLETION



*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**

Fees: **USD 3400** | Start Date: **May 7, 2022**

Prerequisites: **Basic knowledge of Computer Programming and Statistics**

MIT Professional Education's Applied Data Science Program, with curriculum developed and taught by MIT faculty, is delivered in collaboration with Great Learning.



Great Learning, a part of the BYJU'S group, is a leading global ed-tech company for professional and higher education. It offers comprehensive, industry-relevant programs across various cutting-edge Technology, Data, and Business domains. Great Learning's programs are developed in collaboration with the world's foremost academic institutions such as Stanford Executive Education, MIT Professional Education, Wharton Online, The University of Texas at Austin, Northwestern School of Professional Studies, National University of Singapore, Deakin University, IIT Madras, IIT Bombay, IIT Roorkee, IIIT-Delhi, Great Lakes Institute of Management, and more. They are constantly reimagined and revamped to address the dynamic needs of the industry. Great Learning is the only ed-tech company to provide these programs in a blended mode, classroom mode, and purely online mode, relying on its vast network of expert mentors and highly qualified faculty to deliver an unmatched learning experience for learners in India and the world over. Great Learning is on a mission to enable transformative learning and career success in the digital economy for professionals and students across the globe and till date, we have impacted over 3.3 million learners from over 160 countries.





# READY TO BECOME A DATA-DRIVEN DECISION MAKER?

**APPLY NOW**

Contact Great Learning for  
more information about  
MIT Professional Education's  
Advanced Data Science Program



+1 617 468 7899 / +91 9606 053 237



[adsp.mit@mygreatlearning.com](mailto:adsp.mit@mygreatlearning.com)



<http://www.mygreatlearning.com/mit-data-science-program>