

The background is a dark blue field filled with a complex network of glowing light blue lines and nodes. The nodes are small, bright blue spheres, and the lines are thin, connecting them into a web-like structure. Some nodes are more prominent than others, and the overall effect is one of digital connectivity and data flow.

# **MIT MACHINE LEARNING PLUS DIGITAL LEARNING PROGRAM**

“在线+线下”融合教学模式  
零差异的MIT课堂学习体验

# MIT MACHINE LEARNING PLUS DIGITAL LEARNING PROGRAM

## 项目简介

麻省理工学院是世界著名的私立研究型大学，拥有多个在工程学、计算机科学和人工智能领域的重点实验室，是全球人工智能研究的前沿阵地。Machine Learning Plus Program由麻省理工学院EECS/Media Lab/Sloan School of Management的教授、科学家、研究员执教，以Project-Based Learning展开，融合了多种学习场景和教学模式，包括录播、直播、编程实践、前沿应用project等部分，最大限度地为学生提供与MIT课堂零差异的学习体验。

## 核心课程

Machine Learning in Business Analytics

机器学习与商业分析

Deep Learning and Its Applications

深度学习及应用



## LIGHTS

room 1 room 2 room 3 room 4 room 5



## SECURITY

cam 1 cam 2 cam 3 door 1 door 2 door 3 door 4



## TEMPERATURE

room 1 room 2 room 3 room 4



## STATISTICS

water usage



temperature



temperature



## 课程平台

### 工科莘

## GONGKESHEN DIGITAL LEARNING

**Adaptive Learning** 根据学生的专业背景和兴趣方向推荐适合学生的课程，在学习场景中依据每个学生的个性化需求生成学习资料。

**Blended Learning** 融合录播轻课、直播课程、在线答疑和线下分享、交流、指导等，为学生提供更加灵活、更具前瞻性的师资指导。

**Project-Based Learning** 将专业知识同最新的科研方向、行业应用方向结合，由学生在教学团队的指导下进行项目实践，提升学生的国际前沿工程知识和设计研发能力。

**Learning by doing** 知识学习和动手实践紧密结合，通过解决具有指导意义的实际问题加深对知识的理解，为学生提供更具有交互体验的学习体验。

## 新工科卓越人才培养



抢占人工智能时代全球胜任  
力人才培养前进营地



学习、借鉴、融合、创新工程人才  
的教学方法和培养路径



创新后疫情时期新工科  
人才国际化培养模式



提升学生工程综合能力、  
学科交叉融合能力、科技前沿知识

## 教学团队



### **Prof. Hui CHEN**

Professor of Finance at MIT Sloan School of Management

Research Interests:

1. Asset pricing, and its connections with corporate finance; financial constraints; credit risk; liquidity risk.
2. Robustness; financial econometrics; financial machine learning.

Teaching: Analytics of Finance



### **Prof. Suvrit Sra**

Esther and Harold E. Edgerton (1927) Career Development Associate Professor, Electrical Engineering and Computer Science at MIT  
Core Member of IDSS and LIDS, MIT

Research Interests: His research bridges a variety of mathematical topics including optimization, matrix theory, differential geometry, and probability with machine learning. His work encompasses a wide range of topics in optimization, especially in machine learning, statistics, signal processing, and related areas. He is pursuing novel applications of machine learning and optimization to materials science, quantum chemistry, synthetic biology, healthcare, and other data-driven domains.

Teaching: 6.867 Machine Learning, 6.036 Introduction to Machine Learning



### **Prof. Shimon Kogan**

Visiting Associate Professor of Finance at MIT Sloan School of Management  
Visiting Associate Professor of Finance at Wharton School of Business, University of Pennsylvania  
Associate Professor of Finance at Arison School of Business, IDC Herzliya

His research focuses on behavioral finance with application to asset pricing. Broadly speaking, he is interested in understanding how information is processed by investors and how this process may affect market outcomes. His approach is interdisciplinary, integrating tools and insights from both psychology and computer science.

Teaching: FinTech: Business, Finance, and Technology



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### **Prof. Paramveer Dhillon**

Research Affiliate at MIT Sloan School of Management and at the Initiative on the Digital Economy  
Assistant Professor in the School of Information at the University of Michigan

His research centers around:

1. Understanding the impact of internet technologies on users by empirically studying their interactions with such systems.
2. Machine Learning, Natural Language Processing, Network Science, and Causal Inference for 1.

Teaching:

SI 671/721 Data Mining: Methods and Applications  
SIADS 642 Introduction to Deep Learning

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### **Dr. Vivek Sharma**

Postdoctoral Researcher in Camera Culture Group, Media Lab at MIT

Research Interests: Computer Vision and Machine Learning

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### **Dr. Alexander Amini**

PhD Candidate at MIT, in the Computer Science and Artificial Intelligence Laboratory (CSAIL)  
NSF Fellow

His research focuses on building machine learning algorithms for end-to-end control (i.e., perception to actuation) of autonomous systems and formulating guarantees for these algorithms. He has worked on control of autonomous vehicles, formulating confidence of deep neural networks, mathematical modeling of human mobility, as well as building complex inertial refinement systems.

Teaching: 6.S191 Introduction to Deep Learning

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### **Dr. Ava Soleimany**

PhD Candidate at MIT and in the Harvard Biophysics Program

Her research focuses on engineering novel diagnostics for the early detection of cancer. Her work leverages tools from nanotechnology, machine learning and statistics, chemical biology, and bioengineering to create new diagnostic and therapeutic biotechnologies.

Teaching: 6.S191 Introduction to Deep Learning

## 课程教学大纲

# MACHINE LEARNING IN BUSINESS ANALYTICS

## 机器学习与商业分析

本课程将重点关注机器学习在商业领域的实践应用，通过对数据的挖掘、分析，进行预测预报、关键影响因子分析、趋势识别和模型优化等。课程将结合具体的应用案例展开，核心要点包括：

- Introduction to Machine Learning
- Machine Learning Methods
- Machine Learning in Data Science
- Machine Learning in Fin-tech
- Machine Learning in Marketing

# DEEP LEARNING AND ITS APPLICATIONS

## 深度学习及其应用

本课程将重点关注机器学习/深度学习的经典理论、优化算法及前沿应用案例，突出图形与视觉方向的应用，以丰富的编程练习和贴近实际场景的项目作业为考察手段，检测课程参与者的理论与实践收获。核心课程要点包括：

- Introduction to Machine Learning
- Introduction to Deep Learning
- Neural networks and convolutional processing
- CNN architectures(AlexNet, Resnet, etc.)
- Vision with sequences(captioning, video processing, and transformers)
- Generative image modeling
- Applications: depth estimation, segmentation, object detection (YOLO, FasterRCNN)
- Neural rendering and graphics
- Interpretability and uncertainty
- Fairness and bias of vision modelling



## 学生核心收获

麻省理工学院Machine Learning/Deep Learning官方课程教学团队担纲课程设计和教学工作，与MIT学生零差异的教学经历和学习体验

完成学习任务后获得学习证书、由教学团队评定的学习成绩报告

优秀学生有机会获得教学团队的推荐信

学术能力（学术视野、文献研究、交叉学科创新思维、项目实践）、英文能力（学术英文写作）的全方位提升

优秀学生有机会申请麻省理工学院机器学习相关研究组/实验室的科研项目

## 学生分享

### 浙江大学参与同学

通过这次MIT机器学习+线上课程对整体机器学习有了理论上的认识，课后的assignment和小组project提供了自我思考空间、理论设计和代码实操机会。整体课程内容很完整。总之，通过本次项目，拓展了学术视野，对未来的专业发展有了更好的认识。

### 武汉大学参与同学

Sra教授授课新颖有趣，平台提供的线上答疑和作业练习都很及时有效，让我在这个暑假留下了一段宝贵的学习经历。

### 南京大学参与同学

因为专业差距较大，所以一开始有些担心会跟不上，但是在前期的咨询中发现可以通过一些预习帮助我快速的了解这个课程，通过一些前期的学习加老师的帮助，可以基本明白老师的上课内容，并最终完成作业与考试，收获满满。



☎ 咨询电话：021 2250 2221

☎ 咨询微信：tbai01