MIT MACHINE LEARNING PLUS DIGITAL LEARNING PROGRAM

麻省理工学院官方课程教学团队
与MIT课堂零差异的学习体验
"线上+线下"融合教学模式

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项目简介

麻省理工学院是世界著名的私立研究型大学，是全球人工智能研究的前沿阵地。Machine Learning Plus Program由麻省理工学院机器学习课程官方教学团队指导，围绕机器学习领域学科交叉的前沿研究和教学，以Project-Based Learning形式展开，融合多维度教学场景和模式，为学生提供与麻省理工学院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 in Computer Vision
深度学习应用于计算机视觉
Deep Learning in Autonomous System
深度学习与无人驾驶

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，依据每个学生的个性化需求提供不同难度的学习资料。

Blended Learning 融合录播课程、直播课程、在线答疑和线下交流项目等，为学生提供更加丰富多元、更具前瞻性的项目经历和体验。

Project-Based Learning 将专业知识同最新的科研方向、行业应用方向结合，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科研能力。

Learning by doing 知识学习和项目实践紧密结合，通过解决具有指导意义的实际问题加深对知识的理解，提升学生学习的互动性和交互性。

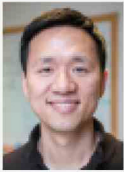## 新工科卓越人才培养

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

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

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

Dr. Vivek Sharma

Postdoctoral Researcher in Camera Culture Group, Media Lab at MIT

Research Interests: Computer Vision and Machine Learning

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

Dr. Roy Shilkrot

Research Scientist, Media Lab at MIT

His research revolves around augmenting fingers and hands, wearable computers and more. I am active in the HCI, Augmented Reality, Computer Graphics and Computer Vision communities.

Teaching: MAS.S60: Experiments in Deepfakes

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 IN COMPUTER VISION
深度学习应用于计算机视觉

本课程将重点关注深度学习的经典理论，结合最前沿的工程应用案例，突出深度学习在计算机视觉的交叉应用。课程内容要点包括：

- Introduction to Deep Learning
- Neural Networks and Convolutional Processing
- CNN Architectures
- Vision with Sequences
- Generative Image Modeling
- Applications: Depth Estimation, Segmentation, Object Detection
- Neural Rendering and Graphics
- Interpretability and Uncertainty
- Fairness and Bias of Vision Modelling
- 3D Reconstruction with Deep Networks

DEEP LEARNING IN AUTONOMOUS SYSTEM
深度学习与无人驾驶

本课程将重点关注如何将深度学习的基础理论运用到无人驾驶的基础模型和算法中。机器学习以及深度学习在无人驾驶领域有着广泛的运用，不仅可以提高感知的精度，还可以强化学习控制。课程主要内容包括：

- Mapping and Localization
- Virtual SLAM for Self-Driving Vehicles
- End to End Learning of Robotic Actuation
- Deep Reinforcement Learning for Control
- Future of Human-Centered Autonomy
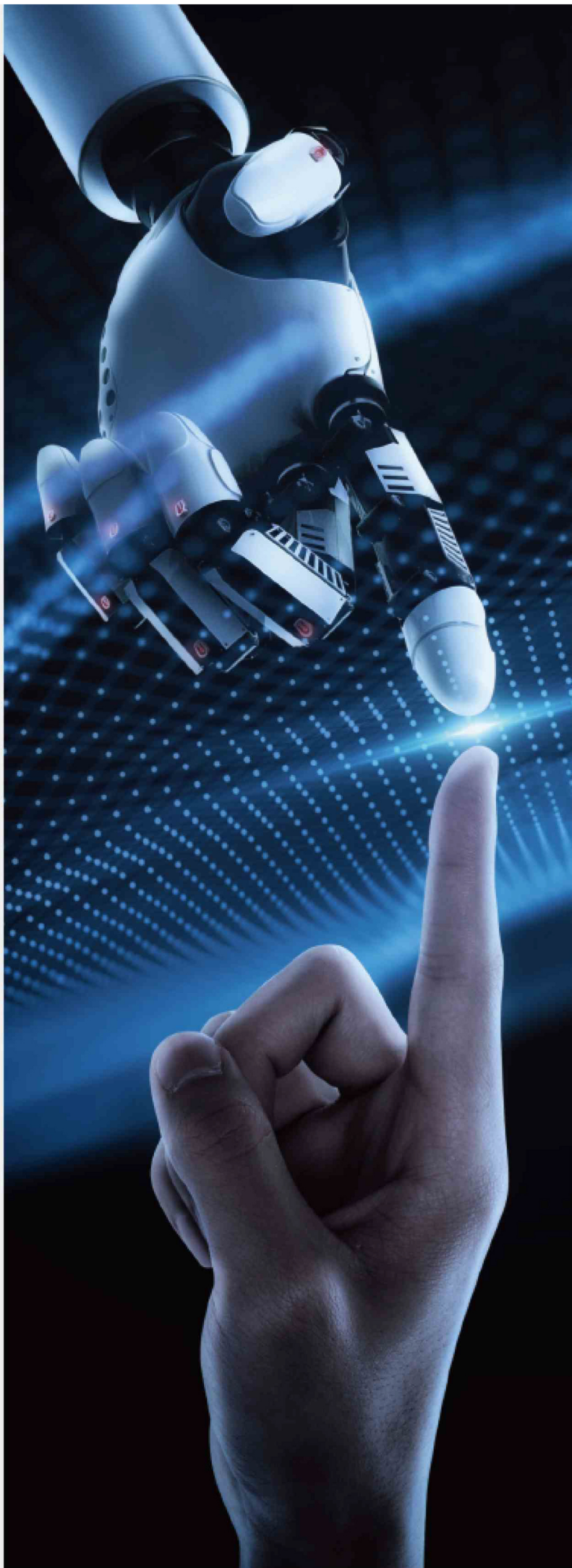
学生核心收获

麻省理工学院官方课程教学团队担纲课程设计和教学工作，使用与麻省理工学院学生一致的教学资料，与MIT课堂零差异的学习体验

教学内容围绕机器学习领域的经典理论、前沿应用以及学科交叉的最新动态展开，开阔学生学术视野，加深对机器学习及应用的了解

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

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，助力后续深造申请

优秀学生有机会获得教学团队的推荐信，并有机会申请麻省理工学院相关研究组/实验室的科研项目

费用可全额抵扣线下交流项目，为学生提供更多与官方教学团队沟通交流机会

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。

复旦大学参与学生

整个学习过程总体来说非常愉快，我很喜欢这些课程和为之努力的教授以及助教老师。有机会与名校的教授交流，得到教授们的耐心解答，我对自己以后想要学习的领域有了新的认识。除此之外，还有小组的组员们齐心协力完成team project，真的很有成就感！

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，并最后完成作业与考试，收获满满。

咨询电话：021 22502221
咨询微信：tbstudy11