


# BLENDED LEARNING

IN COLLABORATION WITH  xPRO


**2022暑期** 课程项目总结报告

**Kaiser Q.**

中国区高校合作负责人  
Blended Learning MIT

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# BLENDED LEARNING

IN COLLABORATION WITH  xPRO

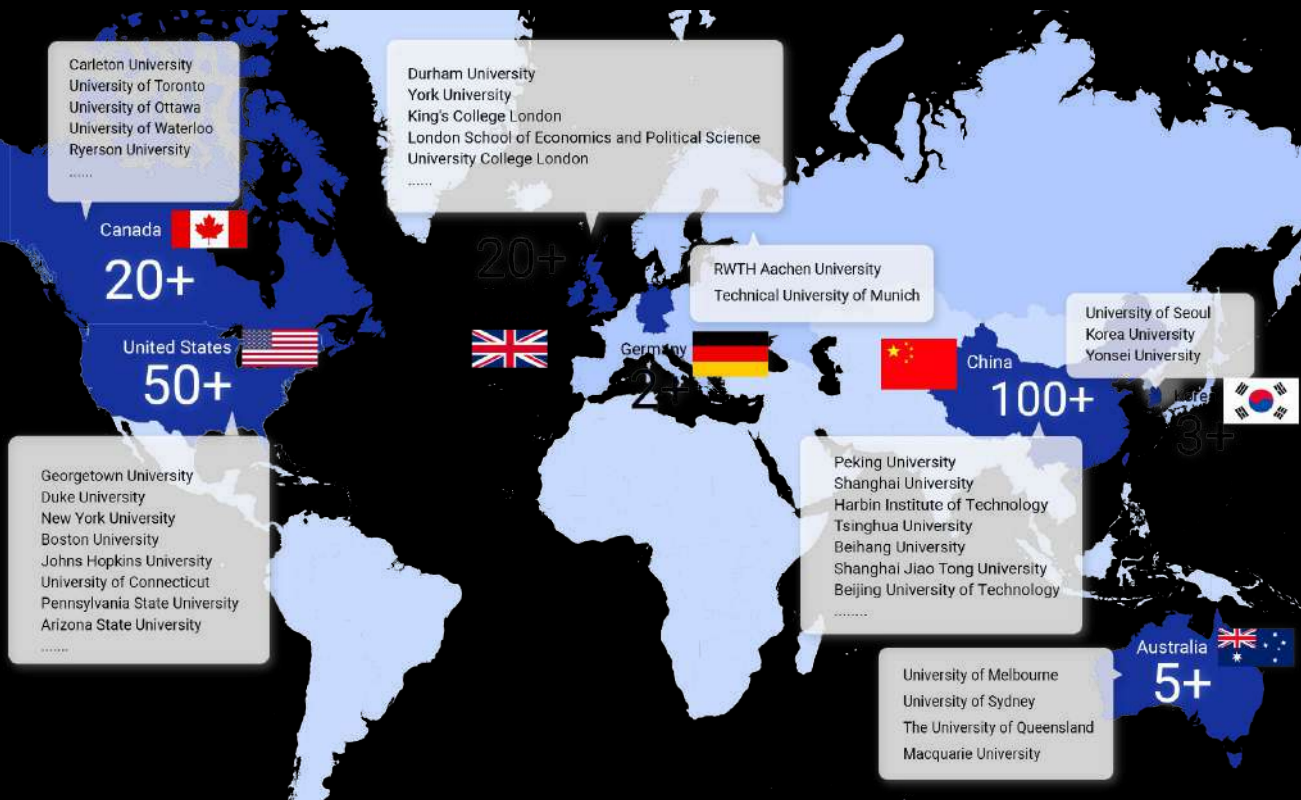
第一部分：

**2022 暑期**

**Blended Learning 项目总结**

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# Blended Learning 全球会员高校



# Blended Learning 2022 全球会员高校 (排名不分先后)

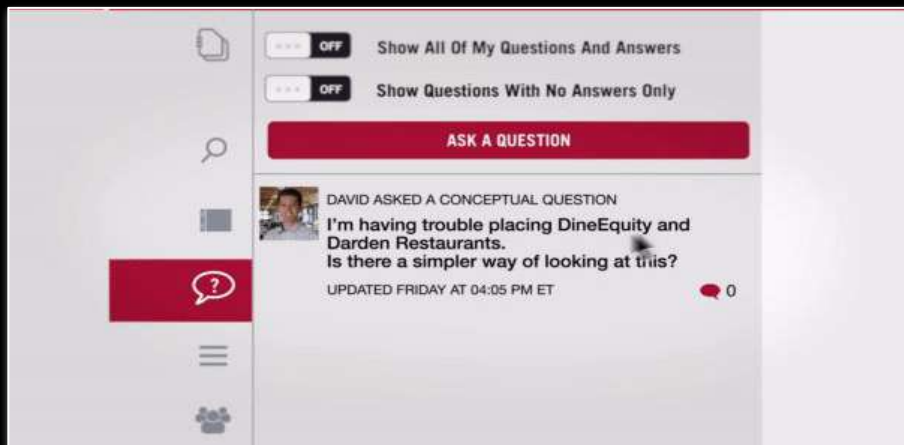
上海交通大学	云南大学	南京大学	昆明理工大学	乔治城大学	加州大学-戴维斯分校	康涅狄格大学	纽约大学
上海大学	兰州大学	南京林业大学	暨南大学	亚利桑那州立大学	加州大学-欧文分校	德国 亚琛工业大学	麦考瑞大学
上海工程技术大学	北京中医药大学	南京航空航天大学	武汉大学	亚琛工业大学	加州大学-洛杉矶分校	德国 慕尼黑工业大学	罗格斯大学
上海师范大学	北京交通大学	南开大学	浙江大学	伊诺诺伊大学	华盛顿大学圣路易斯	悉尼大学	英属哥伦比亚大学
上海财经大学	北京外国语大学	南方科技大学	浙江工商大学	伦敦国王学院	南加州大学	昆士兰大学	蔚山科技大学
东北大学	北京大学	厦门大学	海南大学	伦敦城市大学	南洋理工大学	杜伦大学	西安大路大学
东北林业大学	北京工业大学	吉林大学	清华大学	伦敦大学学院	卡尔顿大学	杜克大学	诺丁汉大学
东华大学	北京师范大学	同济大学	电子科技大学	伦敦大学玛丽女王学院	史蒂文斯理工学院	波士顿大学	贝尔法斯特女王大学
东南大学	北京林业大学	哈尔滨工业大学	福州大学	埃克塞特大学	渥太华大学	霍夫斯特拉大学	
中南大学	北京理工大学	哈尔滨工程大学	西交利物浦大学	伦敦大学金史密斯学院	墨尔本大学	滑铁卢大学	韩国 成均馆大学
中国人民大学	北京航空航天大学	复旦大学	西北大学	伯明翰大学	多伦多大学	瑞典森大学	首尔国立大学
中国传媒大学	北京邮电大学	大连理工大学	西南交通大学	俄亥俄州立大学	宾夕法尼亚州立大学	约克大学	马尼托巴大学
中国地质大学	华东师范大学	天津大学	西南财经大学	利兹大学	密歇根大学安娜堡分校	约翰霍普金斯大学	麦克马斯特大学
中国海洋大学	华东理工大学	天津理工大学	西安交通大学	利物浦大学	帝国理工学院	纽卡斯尔大学	麦吉尔大学
中国矿业大学	华中师范大学	宁夏大学	重庆大学				
中国科学技术大学	华中科技大学	安徽医科大学	重庆邮电大学				
中国科学院大学	华南农业大学	对外经济贸易大学	香港城市大学				
中央财经大学	华南理工大学	山东大学	香港科技大学				
中山大学	南京农业大学	昆山杜克大学					

# 多所高校对Blended Learning 2022暑期课程项目进行了官方通知

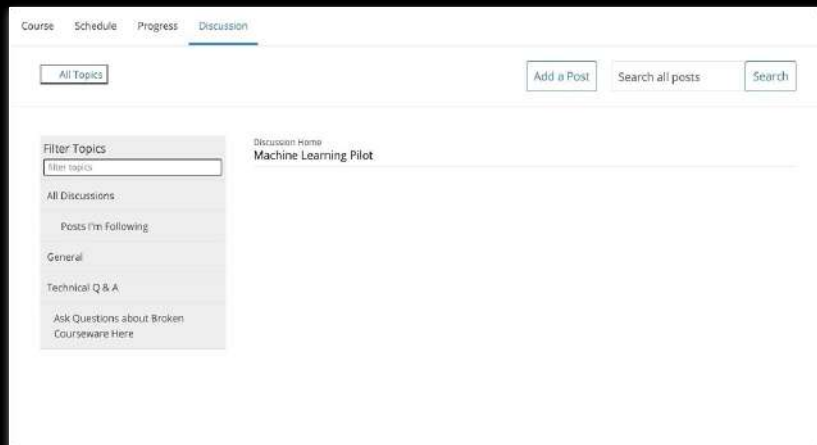


除上述学校外，浙江大学、暨南大学、南方科技大学、北京理工大学、中国矿业大学、南京林业大学等多个会员高校也在校进行了项目通知

# Blended Learning 同学积极利用MIT和哈佛商学院平台进行互动学习



学生在HBS学习平台上进行沟通相约线上研讨



学生在MIT学习平台上讨论课后测验


# Blended Learning 同学在实操/科研项目阶段与导师的互动瞬间

Xinyu Liu

Hi @Elle Beaudry, I have a question on the netCDF when I am trying to open it using Jupyter Notebook. Does a valid netCDF file have dimensions, variables, and attributes? The netCDF file I downloaded from Sentinel-5P Pre-Operations Data Hub(<https://s5phub.copernicus.eu/dhus/#/home>) only has attributes. I'm confused about it.

s5phub.copernicus.eu

**Sentinel-5P Pre-Operations Data Hub**  
OK Sentinel-5P Pre-Operations Data Hub - Open Street Terrain + Overlay Sentinel-2 Cloudless + Overlay No products found. Display to of 0 products. Order By: Request Done: 25 50 75 100 125 15...



I downloaded the netcdf file from this URL.

7:41 PM

Elle Beaudry

Hi Xinyu, yes I think you should have variables in a valid netCDF file. I'm not sure why your file seems to be missing information. Have you tried downloading a different file or are you're downloading manually retrieving using a script?

I think Bill from the research group downloaded all the satellite data for their project. If you are still having problems, maybe you could ask him how they did it?

《污染与空气质量分析》项目中

学生向导师(哈佛大学大气化学和建模小组研究员)

询问Jupyter Notebook的正确使用方法

导师悉心解答

# Blended Learning 同学在实操/科研项目阶段与导师的互动瞬间

AP4 Applied Psychology: Track 4 8: 7

Chat Docs Pin File +

Nancy Tsai

Hi everyone, I hope writing is going well! As a reminder: You can refer back to my lecture on "Paper Publication Guidelines" if you'd like more guidance on how each section of the paper is supposed to be written. Including this week, there are only 3 more sessions to write/edit the paper. \*add gas\*!!

Nov 28, 2021

Wenxin (Sherry) Zhang | 高效工作! Work Efficiently!

I am so sorry that I'm still on my way back to Shanghai right now so I may be not able to attend the session. But I will report my progress later and post some notes about article reading. (Writing an introduction, especially the article review is exactly hard 🥲)

Nancy Tsai

应用心理学项目导师(MIT 发展认知神经学家)关切学生的论文发表进度, 并对前几天学生提到的术语定义解释做出反馈解答

1 reply

Nancy Tsai

Reply to Wenxin (Sherry) Zhang: I am so sorry that I'm still on my way back to Shang...

@Wenxin (Sherry) Zhang No problem! Also, Tong passed along your question about "Transient Anxiety". Transient anxiety is short-lived or temporary anxiety. It's anxiety you feel for a very short period of time. In our paper, instead of talking about transient anxiety, we describe it as state anxiety if we are talking about short-term emotion. If we are talking about something that lasts for a VERY long time, say it's like part of your personality or trait, we describe it as "trait anxiety". Does that make sense, Sherry?

AP1 Applied Psychology Research Team 1 8: 8

Chat Docs File Group Announceme... +

William: Mentor/Academic Advisor

Hey @All , just a reminder that your FINAL PRESENTATION session is coming up in a little over 16 hours, tomorrow 5/27 from 9-11am! You are asked to put together a powerpoint summarizing your findings and research and each person in the group should speak. Let me know if you need any help or have any concerns!

Buzzed Shuoli Qi, Tianrun Wang, Ishan Yueshan Zhong

Nancy Tsai

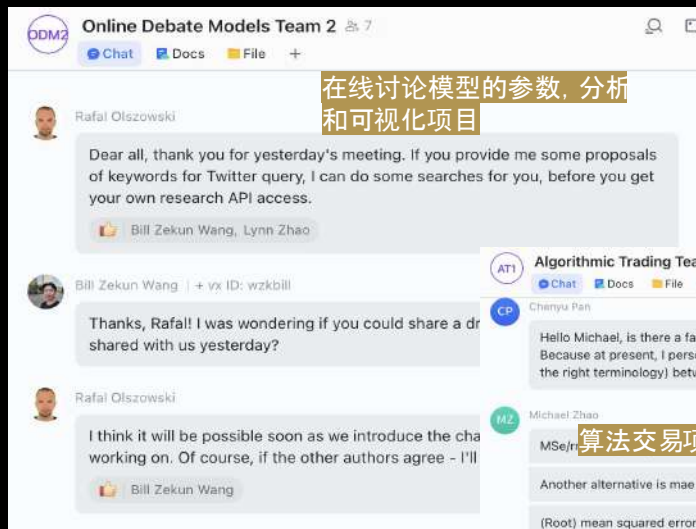
Hi everyone, I finished going through your paper very very carefully. I want to take a moment to highlight what a wonderful job you all did. I left a TON of notes (don't be overwhelmed) and am pushing you towards a better version. Most notably, I think that analysis/results/discussions were very clearly and well written but the introduction could use more editing for clarity. Otherwise, the content is GREAT. I hope you all felt like you learned a lot and did interesting, meaningful work. Maybe this has inspired some interest in Cognitive Neuroscience or Education Psychology. I am very pleased with your final paper and hope you all feel proud of your work as well! Please reach out if you need anything :) I look forward to your final presentation tomorrow!

Jun Wu-Shanghai, Shuoli Qi, Jun Wu-Shanghai, Ishan Yueshan Zhong

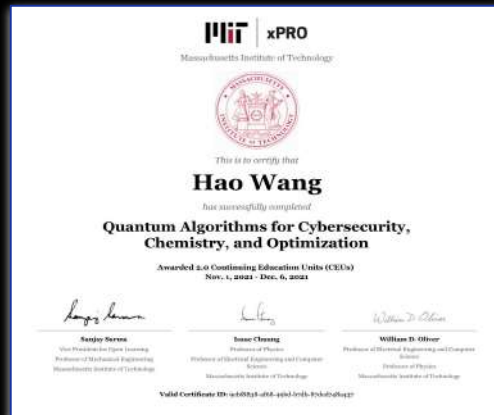
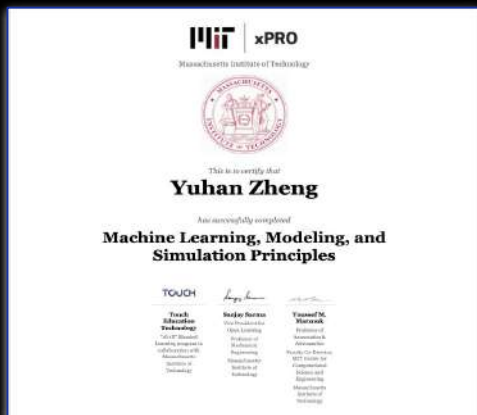
项目完成后反复阅读学生论文, 并给予了大量具体修改建议, 学生纷纷表示感谢并在课后与导师持续保持联系



# Blended Learning 同学在实操/科研项目阶段与导师的互动瞬间



# 学生完成短期证书课程后获得MIT和HBS官方证书展示



# Blended Learning 中国高校学生完成多篇完整论文

## What is the Bitcoin trend?

Using social media and Old-Gold Price to estimate the Bitcoin price  
Ruibin Yao, Siqian Wu, Shuoli Qi

### Abstract

As one of the most trading modes in the current market, cryptocurrency draws many professionals' attention. Bitcoin, the most famous cryptocurrency, is attracting tremendous attention from professionals as well as the public. With the development of the algorithm, Bitcoin's price and volume have increased in the last several years. However, the daily price of Bitcoin is unstable. Consequently, in order to make better decisions, investors believe it is necessary to predict the change of Bitcoin price. Therefore, a model to predict Bitcoin price based on several factors, including social media attention, old price, and gold price, is provided in this paper. According to the data we collected, we construct a predicting model that takes public attention as an independent variable, and we also construct a model without public attention variable to test whether public attention is positive or not. The study reveals that public attention provided by Google Trends is not positive for Bitcoin price change.

### 1. Introduction

Cryptocurrency is a concept arising with the development of computer science. Due to its decentralization trait, cryptocurrency is attracting tremendous attention. The cryptocurrency has a tremendous volume worldwide. According to Fungini et al. (2021), Bitcoin's cryptocurrency has a total market capitalization of more than \$1,540,000,000,000 on March 16, 2021. The number of new transactions occurring along with dramatic fluctuations. The CPI of the United States has rose 7%, which has continuing to bring its highest level since June 1962. Accordingly, Bitcoin rose 3.5 per cent to \$44,049 when the data were released. News activities are predicting higher inflation, pushing Bitcoin much back and forth higher.

**论文题目：**  
What is Bitcoin Trend ?

**参与学生：**  
Ruibin Yao, Siqian Wu, Shuoli Qi

## MultiRL: A reinforcement learning framework for unparallel literary text multi-style transfer

Chenlu Wang  
Industrial Engineering  
Beijing Jiaotong University  
Peking, China  
2019.12.14

Jie Tang  
Optics  
Beijing Jiaotong University  
Peking, China  
2019.12.14

Jiale Liu  
Educational Technology  
University of Michigan  
Ann Arbor, USA  
2019.12.14

### Abstract

Transfer learning is used to transfer knowledge from the source domain to the target domain. In this paper, we propose a novel MultiRL framework for unparallel literary text multi-style transfer. The framework is composed of two parts: a reinforcement learning framework and a multi-style transfer framework. The reinforcement learning framework is used to learn the transfer policy. The multi-style transfer framework is used to transfer the knowledge from the source domain to the target domain.

### 1. Introduction

The development of style transfer has attracted widespread attention for the past decade, with significant work published in the areas of text (Beebe et al., 2017; Jia et al., 2017), image (Gulshan et al., 2017; Jia et al., 2017), and audio (Gulshan et al., 2017; Jia et al., 2017). In this paper, we propose a novel MultiRL framework for unparallel literary text multi-style transfer. The framework is composed of two parts: a reinforcement learning framework and a multi-style transfer framework. The reinforcement learning framework is used to learn the transfer policy. The multi-style transfer framework is used to transfer the knowledge from the source domain to the target domain.

**论文题目：**  
MultiRL: A reinforcement learning framework for unparallel literary text multi-style transfer

**参与学生：**  
Chenlu Wang, Jie Tang, Jiale Liu

## Resilience of adolescents under acute stress and a potential measurement

Wexin Zhang, Xinyu Deng, Ting Zhang (highlight on no particular order)  
Address: Nanyang Tech

### 【Abstract】

Stress is one of the main causes of mental illnesses and it is divided into chronic stress and acute stress according to the duration of action. In human terms, resilience is an ability to deal with the bad effects caused by stress. Investigating adolescent resilience under stress will help predict potential mental illnesses. Recent studies use questionnaires to measure the degree of resilience and most of them focus on the effect of chronic stress. In this research, resilience under acute stress is focused and a new measurement to investigate resilience by collecting data from a game is proposed, which helps to measure resilience more objectively.

**Keywords:** resilience, acute stress, resilience measurement.

### 1. Introduction

Stress plays an important role in the development of people's physical and mental health. According to research about relationships between stress and mental diseases, it has been proven that stress has a strong correlation with these diseases (Parker, 1979; Van Praag, 2004). For those who are exposed to great stress with a high potential to get mental illnesses, a good factor is that human bodies have built up mechanisms to deal with the bad influence, which is called "resilience". In general, resilience can be defined as a dynamic process of adapting to adversity and improving people's performance under tough conditions (Masten et al., 2011; Rutter, 1987; Monroe & Olsson, 2007). People who have higher resilience are less affected by both direct and indirect influences of negative emotions. The development of resilience should be regarded as a complex connection between the interaction of both cognitive development and adaptive learning during the entire life (Lerner, 2014; Xie et al., 2019).

**论文题目：**  
Resilience of adolescents under acute stress and a potential measurement

**参与学生：**  
Wexin Zhang, Xinyu Deng, Tong Zhang

## Transfer Learning-based Prediction for Shared Bicycle Demand Flow

Yuchen Liu, Yuhang Zheng, Qile Zhang

### Abstract

As an important component of urban space, shared bicycle is the key to solve urban transportation. Development of the transportation plays a great role in promoting the realization of the development goal of "green city". However, when using traditional methods, the data used may not always be the same as the target system. This paper uses a deep transfer learning framework to transfer the knowledge from the source domain to the target domain. In this paper, we use the transfer learning framework (TLF) to predict the demand of shared bicycle flows and further distribute the system. We evaluate the accuracy of these models, and also test the transferability by using the dataset for Washington DC and New York.

**Keywords:** Transfer prediction, ARIMA, LSTM, GMM

### 1. Introduction

As an important component of urban space, transportation system is the key to solve urban transportation. Development of the transportation plays a great role in promoting the realization of the development goal of "green city". As one of the new forms of sharing economy, short-sharing system in electric bikes, light, and high-speed bicycle for sharing is becoming more and more popular. In this paper, we propose a new prediction model for shared bicycle demand flow and analyze its key factors. In the prediction model, we also build a transfer learning framework to transfer the knowledge from the source domain to the target domain. We evaluate the accuracy of these models, and also test the transferability by using the dataset for Washington DC and New York.

The research is based on transfer learning-based prediction for shared bicycle demand flow.

Research on improving urban bicycle sharing service and standardizing bicycle sharing operation management to promote green development.

### 2. Problem Statement

After reviewing the data, we found that most bicycle flows fluctuate in the feature of the season and the time of entering and leaving the system. This leads to the rise and decline of demand during the same time that the expected time is a certain period of time as new stations. Also, different city groups predict more accurately about bicycle demand in the same city.

**论文题目：**  
Transfer Learning-based Prediction for Shared Bicycle Demand Flow

**参与学生：**  
Yuchen Liu, Yuhang Zheng, Qile Zhang

## Random Channel Correlation Block for Diversified Arbitrary Style Transfer

Xuan Luo\*, Alex Benjamin\*, Zhen Han\*

\*Xian Jiaotong University, \*Massachusetts Institute of Technology, \*Yunnan University

**Abstract.** Arbitrary style transfer methods can generate stylizations results with very consistent style pair in real-time. However, they cannot provide diversified results for the same image pair since the parameters are fixed. The existing diversity method are mainly based on randomized optimization or least constraining the feature distributions, resulting in distorted and limited diversity. We proposed to random channel correlation block to alleviate these problems, which increases the diversity of content and style features naturally. This block uses the randomization-optimization operation to capture the distribution features and produce the desired results. A middle layer is formed from normal distribution as an original noise representation. This is a stochastic operation is performed between the content and style features to generate diverse results. The correlated random vector is selected to transfer the features for diversity. To better train and evaluate the diversified accuracy with transfer process, we also build a random channel loss and an arrangement diversity loss. Experiments demonstrate the effectiveness of the proposed random channel correlation block and the diversity block.

**Keywords:** Style transfer, diversity generation, Diversity

### 1. Introduction

Style transfer methods take a content-style image pair as input and output a stylized image, which preserve the structure of the content image while transferring the style pattern. The pioneering style transfer algorithms [1, 2] iteratively optimize an image with perceptual losses based on VGG [3] features. These algorithms are further extended by [4, 5]. Although these optimization-based methods can generate diversified high-quality results, their iteration process is particularly slow. To solve the issue, end-to-end deep learning based methods [6, 8] and arbitrary style transfer methods [4, 9] are proposed. The deep learning network based methods are presented with a single style or a set of styles, providing a fast and convenient style transfer process. The arbitrary style transfer methods generalize the backward network to accept a number of styles by leveraging the feature activation. These methods have drawn much attention from the researchers and industrial due to their efficiency and flexibility.

**论文题目：**  
Random Channel Correlation Block for Diversified Arbitrary Style Transfer

**参与学生：**  
Xuan Luo, Alex Benjamin, Zhen Han

# Blended Learning 中国高校学生多篇论文得到了发表



## 论文题目

A Prior Probability of Speaker Information and Emojis Embedding Approach to Sarcasm Detection

## 参与学生

Yin Wang, Xuyang Xu, Ziteng Gao, Xi Shi

## 参与课程

PBL 《Natural Language Processing - Apple Siri Project》



## 论文题目

A comprehensive evaluation of statistical, machine learning and deep learning models for time series prediction

## 参与学生

Ang Xuan; Mengmeng Yin; Yupei Li; Xiyu Chen; Zhenliang Ma

## 参与课程

PBL 《Machine Learning and Smart Transportation - Lyft Project》



## 论文题目

Demand forecasting: From Machine Learning to Ensemble Learning

## 参与学生

Yang Zhang, Hongyi Zhu, Yujing Wang, Tianchen Li

## 参与课程

PBL 《Natural Language Processing - Apple Siri Project》

# Blended Learning 中国高校学生得到导师亲笔推荐信

My dear colleague,

For the past eight weeks, I have been Mingyi Yu's Project Lead for a Project Based Learning (PBL) program in algorithmic trading. In this time, I have observed Mingyi's efforts on an intensive research program as well as a research paper summarizing the work accomplished.

I specialize in the fields of data science and economics. Currently, I serve as a Senior Data Scientist at Netflix. I received my PhD from MIT. I teach and have published in journals such as the Proceedings of the National Academy of Sciences and Science Advances. I have also served as a reviewer for academic publications. During this time, I have come across a wide range of individuals. With them all in mind, I say that Mingyi has been a five star in the PBL program.

Over the course of the 8-week program Mingyi had a great deal of responsibility, including working on a project on term spreads forecasting, writing a report summarizing his work, and presenting his work to myself and other colleagues. I interacted with Mingyi on a weekly basis throughout the entirety of the program through one-on-one sessions and office support, and have witnessed his growth first hand.

Overall, I was incredibly impressed with Mingyi's work. He excelled in a technical standpoint. Over the course of the program, he successfully traced and traced 7 different machine learning methods, ranging from classical ARMA to LSTM, to forecast stock prices. Moreover, he validated these models using a specialized cross-validation procedure he implemented from scratch. He also conducted simulation work with stochastic processes to try to better understand the uncertainty of his forecasts. Beyond that, he also made explorations into genetic programming and symbolic transformers for feature engineering. Perhaps most impressive of all, however, is that he accomplished all this work over the course of just 8 weeks!

I anticipate that Mingyi will leverage the skills and experiences from his time in the PBL in many exciting and fruitful aspects of his life. He expressed a desire to continue to algorithmic trading, and has identified his first endeavor in preparing to do so as pursuing the opportunity. I genuinely could not think of a more worthy candidate.

It is with great enthusiasm and no reservations that I recommend him for you. Please do not hesitate to let me know if I can be of further assistance in you regarding his application. You can reach the PBL team at [academ@blendedlearning.com](mailto:academ@blendedlearning.com).

Thank you very much for your time and consideration.

Project Lead Signature:



Name: Michael Xiao

Title: Project Lead, Senior Data Scientist at Netflix

Date: 6/15/2022

Academic Team Signature:



Name: Chris Gurnell

Title: Senior Academic Coordinator

Date: 6/15/2022

参与课程

PBL《Algorithmic Trading - Bridgewater Project》

My dear colleague,

For the past twelve weeks, I have served as Project Lead for Xinyu Ying's Project Based Learning (PBL) program in machine learning in quantitative financing. In this time, I have observed Xinyu's efforts on an intensive research program as well as a research paper summarizing the work accomplished.

I specialize in stochastic analysis and using machine learning methods to solve optimization problems in mathematical finance, in particular in the areas of valuation of derivatives securities, optimal portfolio strategies, and short-term market prediction. In addition, I have worked with several management companies on crafting advanced valuation models as well as published academic research in reputable journals of applied probability and mathematical finance. This experience has significantly informed the PBL program Xinyu completed, which is a rigorous program meant to challenge students for 8 weeks of real-world, project-based learning.

Over the course of the program Xinyu managed a great deal of responsibility, including conducting research on the effect of hedging errors on the performance of portfolio containing cryptocurrencies, writing a paper summarizing her research, and presenting her research findings to myself and other colleagues. I interacted with Xinyu on a weekly basis throughout the entirety of the program through one-on-one sessions and office support, and have witnessed her progress first hand.

Over the course of the PBL program, Xinyu has shown some interest in learning the theory behind mean-variance analysis and the Bayes shrinkage estimator of covariance matrices. In the beginning, she has assisted her team in coming up with a meaningful comparative study in linking various risk factors into a cyclostationary portfolio. Unfortunately, Xinyu did not make accurate contributions to the said research. One major source of concern on a daily basis, therefore, should Xinyu decide to re-join the PBL or embark on a project of a similar sort in the future, I would suggest she start with solving some basic quadratic programming problems to replicate results on mean-variance portfolio that exist in the literature, and do some experiments to make them work before considering her self-adjusted portfolio optimization.

In order to maximize her working understanding of this research, I would recommend that Xinyu continue engaging with these subjects, potentially taking the opportunity to re-join the PBL when it is next available. The program is very demanding, and while extending accommodations permitted Xinyu from completing the entirety of the requirements to the high caliber expected of an advanced research project, it is clear that the experience remains a deeply educational one for her.

Thank you very much for your time and consideration.

Project Lead Signature:

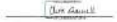


Name: Wenxuan Xia

Title: Researcher in Mathematical Finance at the Questrom School of Business at Boston University

Date: 6/15/2022

Academic Team Signature:



Name: Chris Gurnell

Title: Senior Academic Coordinator

Date: 6/15/2022

参与课程

PBL《Blockchain and AI in Financial Data Science - Galaxy Digital Project》

My dear colleague,

For the past twelve weeks, I have served as Project Lead for Xinyu Ying's Project Based Learning (PBL) program in machine learning in quantitative financing. In this time, I have observed Xinyu's efforts on an intensive research program as well as a research paper summarizing the work accomplished.

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Over the course of the PBL program, Xinyu has shown some interest in learning the theory behind mean-variance analysis and the Bayes shrinkage estimator of covariance matrices. In the beginning, she has assisted her team in coming up with a meaningful comparative study in linking various risk factors into a cyclostationary portfolio. Unfortunately, Xinyu did not make accurate contributions to the said research towards the rest of the program due to some technical problems encountered in the said estimation of major sample moments on a daily basis. Therefore, should Xinyu decide to re-join the PBL or embark on a project of a similar sort in the future, I would suggest she start with solving some basic quadratic programming problems to replicate results on mean-variance portfolio that exist in the literature, and do some experiments to make them work before considering her self-adjusted portfolio optimization.

In order to maximize her working understanding of this research, I would recommend that Xinyu continue engaging with these subjects, potentially being the opportunity to re-join the PBL when it is next available. The program is very demanding, and while extending accommodations permitted Xinyu from completing the entirety of the requirements to the high caliber expected of an advanced research project, it is clear that the experience remains a deeply educational one for her.

Thank you very much for your time and consideration.

Project Lead Signature:

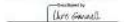


Name: Wenxuan Xia

Title: Researcher in Mathematical Finance at the Questrom School of Business at Boston University

Date: 6/15/2022

Academic Team Signature:



Name: Chris Gurnell

Title: Senior Academic Coordinator

Date: 6/15/2022

参与课程

PBL《Demand Forecasting and Supply Chain Analytics - IKEA Project》

My dear colleague,

For the past twelve weeks, I have been Xinyu Ying's Project Lead for a Project Based Learning (PBL) program focused on recommendation systems. In this time, I have grown to appreciate Xinyu not only as a student who was a pleasure to teach, but also as an individual with striking abilities.

I specialize in machine learning, optimization, and controls. In addition, I have worked developing product-driven state-of-the-art technologies in robotics and automation. During this time, I have come across a wide range of individuals. With them all in mind, I say that Xinyu is a promising asset to this field.

Over the course of the 13-week program Xinyu had a great deal of responsibility, including conducting research on recommendation systems and optimization, writing a paper summarizing her research, and presenting her research findings to myself and other colleagues. I interacted with Xinyu on a weekly basis throughout the entirety of the program through one-on-one sessions and office support, and have witnessed her growth first hand.

Xinyu demonstrated great teamwork skills and proactively ownership over her share of the project. She remained receptive to feedback, which she used to improve her data analysis and presentation skills. A keen learner, she conveyed efforts clearly over to the audience. To add to the above, she put her knowledge and abilities to practical use by developing a website that recommends movies to users.

I anticipate that Xinyu will leverage the skills and experiences from her time in the PBL in many exciting and fruitful aspects of her life. She expressed a desire to contribute to the study of recommendation systems, and has identified her first endeavor in preparing to do so as pursuing the opportunity. I believe Xinyu remains a very strong candidate for this.

It is with great pleasure that I recommend Xinyu to you. Please do not hesitate to let me know if I can be of further assistance in you regarding her application. You can reach the PBL team at [academ@blendedlearning.com](mailto:academ@blendedlearning.com).

Thank you very much for your time and consideration.

Project Lead Signature:

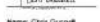


Name: George Manolopoulos

Title: Senior Research Scientist in Machine Learning and Controls at Netflix

Date: 7/14/2022

Academic Team Signature:



Name: Chris Gurnell

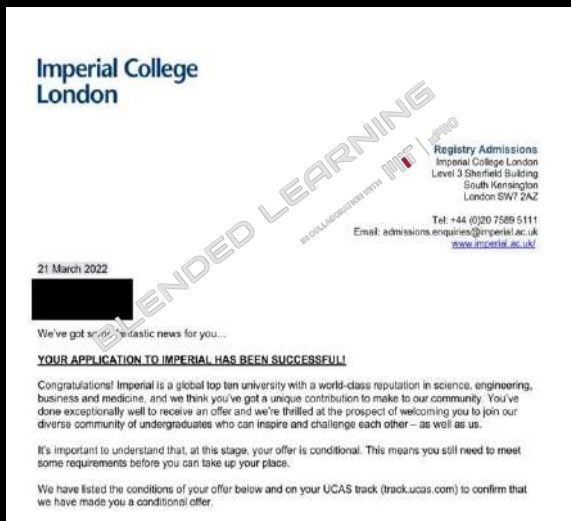
Title: Senior Academic Coordinator

Date: 7/14/2022

参与课程

PBL《Recommendation Systems - Netflix Project》

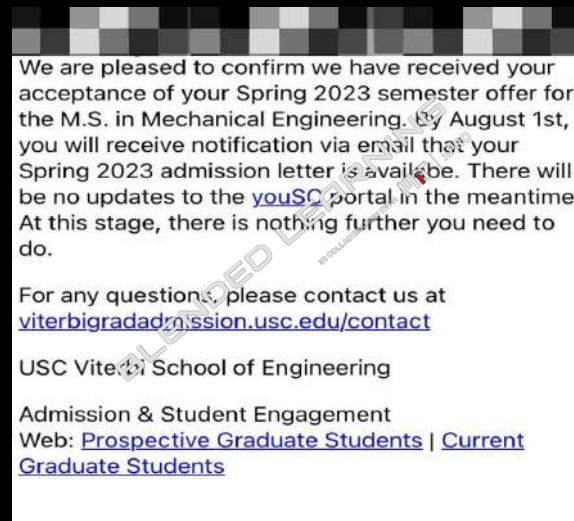
# 同学在完成 Blended Learning 后获得高校研究生、博士录取



- 录取: 帝国理工大学生物医学工程学硕士
- Ruize Gao
- 参与学习计划: 全年科研



- 录取: MIT 斯隆商学院 MFin 金融硕士项目
- Min Lim
- 参与学习计划: 全年实操



- 录取: 南加州大学 市场营销科学硕士项目
- Siyuan Meng
- 参与学习计划: 全年实操

# 中国高校同学在完成 Blended Learning 后获得国内外企业招聘录取



- 录用单位: 普华永道 (上海)
- 学生参与课程:
  - Base SPOC: Machine Learning
  - AI: Deep Learning in Medical Imaging - Siemens Project
  - DA: Algorithmic Trading - Bridgewater Project



- 录用单位: 腾讯
- 学生参与课程:
  - Base SPOC: Machine Learning



- 录用单位: SAP Germany
- 学生参与课程:
  - Deep Learning in Medical Imaging - Siemens Project
  - Advanced SPOC: Applying Machine Learning to Engineering and Science

# 中国高校同学纷纷用视频记录课程感受与收获





# 全球学习者对Blended Learning 给予评价

Voice of global students

**Wenxin Z.**

上海交通大学  
生命科学技术学院 本科生

我本科学习的是生物工程专业，但三年多过去我发现我并不是真的热爱这个专业。参与Blended Learning 的教育心理学科研项目让我找到了我真正想要发展的方向——应用心理学。我正在 taking a gap year, 准备明年申请美国的心理学方向研究生。

**Yunlong T.**

南方科技大学工学院 本科生

这个项目帮助我更深入理解了机器学习有关知识，巩固了基础。在这个项目结束后不久，我将这个项目写到我的简历上，并将简历投递至腾讯。没过多久就收到了腾讯技术研究-机器学习的实习offer。

**Christine C.**

杜克大学 Pratt工程学院 本科生

原子模拟科研项目让我出色的完成了我的本科毕业设计项目，项目成果不仅超过了学院同届的同学，还被IEEE会议论文录用。

**Ruixuan C.**

英国帝国理工学院化学工程学院  
博士研究生

“我在自然语言处理实操项目的导师非常擅长因材施教，能给项目里不同背景水平的同学有针对性的帮助，这一点非常可贵！我在完成项目后加入了导师担任CEO的创业公司，跟他一起继续合作一些项目。”

**Anthony D.**

佛罗里达大学 航空航天工程系 研究生

“在我与波音公司招聘人员（我梦想中的公司）的谈话中，他对我在Blended Learning “管理者经济学”课程学习的经历感到好奇。他问道：“你从经济学中学到的对管理者影响最大的东西是什么？”我没有透露细节，而是回应了WTP（支付意愿）的概念，以及了解如何为产品定价的重要性。他喜欢我的回答，我很幸运地接受了面试，最终得到了一份工作。了解E4M（经理经济学）有助于我作为STEM学生在一次充满技术观点的会议上实现多元化。”



# 会员高校报名学生汇总 - 厦门大学

累计报名人数: 22

Lead: Concentrated Name	Lead: Full Name (Mandarin)	Pricing Plan: Pricing Plan Name	Plan Start Date	Plan End Date
Linyi Wan	万林毅	BL Basic	1/15/2022	3/17/2022
Tianrun Wang	王天润	BL Unlimited	1/15/2022	1/15/2023
Xinyu Ma	马欣雨	BL Basic	1/15/2022	3/17/2022
Yueqi Li	李玥琪	BL Basic	7/17/2021	9/16/2021
Yuqi Ling	凌玉琦	BL Basic	7/17/2021	9/16/2021
Xiaotong Luo	罗晓彤	BL Unlimited	7/17/2021	7/17/2022
Yutong Wei	韦雨彤	BL Complete	7/17/2021	11/27/2021
Keliang Chen	陈科亮	BL Complete	7/17/2021	11/27/2021
Youyang Cao	曹淑扬	BL Complete	5/24/2021	10/4/2021
Zekun Wang	王泽焜	BL Basic	5/14/2021	7/14/2021
Zekun Wang	王泽焜	BL Unlimited	5/14/2021	5/14/2022
Kai Meng	孟恺	BL Basic	4/3/2021	6/3/2021
Ximing Zhang	张熹明	BL Basic	4/3/2021	6/3/2021
Hongwei Zhou	周鸿炜	BL Basic	4/3/2021	6/3/2021
Yingyan Chen	Yingyan Chen	BL Basic	4/3/2021	6/3/2021
Youyang Cao	曹淑扬	BL Basic	4/3/2021	6/3/2021
Yueqi Li	李玥琪	BL Complete	3/20/2021	7/31/2021
Shuwei Liu	刘书玮	BL Basic	1/16/2021	3/18/2021
Mingqian Lyu	吕明倩	BL Basic	1/16/2021	3/18/2021
Yi Li	李怡	BL Basic	1/16/2021	3/18/2021
Jiajun Mei	梅家郡	BL Basic	1/16/2021	3/18/2021
Jialing Wang	王佳玲	BL Basic	1/16/2021	3/18/2021
Zile Zhan	詹梓乐	BL Complete	1/16/2021	5/29/2021


# 会员高校选课汇总 - 厦门大学

累计选课数: 32

Lead: Full Name (Mandarin)	Program Enrollment: Program Name	Program Type	Program Start Date	Program End Date
王洋微 (9)	Base SPOC: Introduction to Quantum Computing	SPOC	1/24/2022	2/21/2022
	Machine Learning in Healthcare - Johnson & Johnson Project	PBL	8/20/2021	9/24/2021
	Algorithmic Trading - Bridgewater Project	PBL	2/19/2022	5/20/2022
	Applied Psychology With Human Data - Neuralink Project	PBL	6/20/2021	9/24/2021
	Designing Machine Learning Hardware - Tesla Project	PBL	2/19/2022	5/20/2022
	Natural Language Processing - Apple Siri Project	PBL	6/6/2021	9/3/2021
	Online Debate Models - Analysis, Metrics and Visualizations - Twitter Project	PBL	2/19/2022	5/20/2022
	Pollution and Air Quality Analysis - GE Project	PBL	2/19/2022	5/20/2022
	AI for New Frontiers in Energy and Environment - Shell Project	PBL	7/10/2022	10/9/2022
Subtotal				
罗颖彤 (5)	Base SPOC: Machine Learning, Modeling, and Simulation Principles	SPOC	7/17/2021	8/28/2021
	Applied Psychology With Human Data - Neuralink Project	PBL	9/25/2021	12/24/2021
	Pollution and Air Quality Analysis - GE Project	PBL	2/19/2022	5/20/2022
	Blockchain and AI in Financial Data Science - Galaxy Digital Project	PBL	9/17/2022	11/11/2022
	AI for New Frontiers in Energy and Environment - Shell Project	PBL	10/15/2021	1/13/2022
Subtotal				
王天渊 (3)	Advanced SPOC: Applying Machine Learning to Engineering and Science	SPOC	1/15/2022	2/26/2022
	Applied Psychology With Human Data - Neuralink Project	PBL	2/19/2022	5/20/2022
	Blockchain and AI in Financial Data Science - Galaxy Digital Project	PBL	9/17/2022	12/16/2022
Subtotal				
李蔚彤 (2)	Base SPOC: Machine Learning, Modeling, and Simulation Principles	SPOC	7/17/2021	8/28/2021
	Applied Psychology With Human Data - Neuralink Project	PBL	6/20/2021	5/24/2021
Subtotal				
陈科亮 (2)	Base SPOC: Machine Learning, Modeling, and Simulation Principles	SPOC	7/17/2021	8/28/2021
	Natural Language Processing - Apple Siri Project	PBL	2/19/2022	5/20/2022

李蔚彤 (2)	Base SPOC: Introduction to Quantum Computing	SPOC	1/24/2022	2/21/2022
	Atomistic Simulation - Schrödinger Project	PBL	2/19/2022	5/20/2022
Subtotal				
曹敬涵 (2)	Base SPOC: Machine Learning, Modeling, and Simulation Principles	SPOC	4/3/2021	5/15/2021
	Deep Learning in Medical Imaging - Siemens Project	PBL	6/26/2021	9/24/2021
Subtotal				
马俊辉 (1)	Business Analytics	SPOC	8/10/2022	10/5/2022
Subtotal				
张展超 (1)	Advanced SPOC: Applying Machine Learning to Engineering and Science	SPOC	4/3/2021	5/15/2021
Subtotal				
孟然 (1)	Advanced SPOC: Applying Machine Learning to Engineering and Science	SPOC	4/3/2021	5/15/2021
Subtotal				
周深斌 (1)	Base SPOC: Machine Learning, Modeling, and Simulation Principles	SPOC	4/3/2021	5/15/2021
Subtotal				
凌玉涛 (1)	Base SPOC: Machine Learning, Modeling, and Simulation Principles	SPOC	7/17/2021	8/28/2021
Subtotal				
方科敏 (1)	Advanced SPOC: Applying Machine Learning to Engineering and Science	SPOC	4/23/2022	6/4/2022
Subtotal				
Yinyan Chen (1)	Advanced SPOC: Applying Machine Learning to Engineering and Science	SPOC	4/3/2021	5/15/2021
Subtotal				

# BLENDED LEARNING

IN COLLABORATION WITH  xPRO

第二部分：

**2022 下半年**

**Blended Learning 项目最新情况**

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# BLENDED LEARNING

## 课程项目涵盖 交叉学科领域

先进制造业

Advanced Manufacturing

人工智能

Artificial Intelligence

量子计算

Quantum Computing

金融科技

Financial Technologies

数据科学

Data Science

创新企业家精神

Innovative Entrepreneurship

科技领域的领导力原则

Technical Leadership

商业战略与执行

Business Strategies

管理和系统思维

Management System

X  
交叉科目

银行业

Banking

区块链

Blockchain

设计

Design

教育

Education

娱乐

Entertainment

环境

Environment

ESG

ESG

金融

Finance

科技

Technology

游戏

Games

医疗保健

Healthcare

管理咨询

Management Consulting

材料学

Materials

心理学

Psychology

社交媒体

Social Media

战略主导权

Strategic Ownership

供应链

Supply Chain

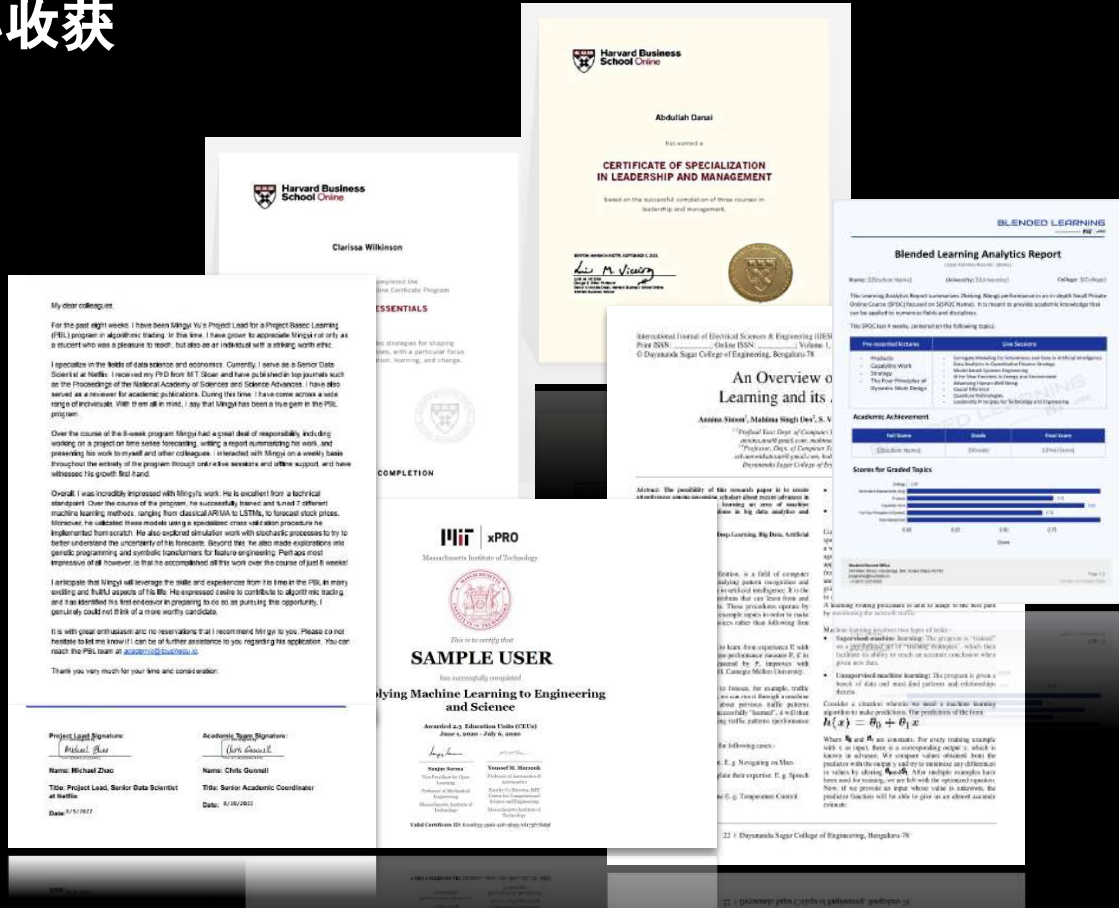
交通运输

Transportation

# 参与Blended Learning 核心收获

How Can Blended Learning Help ?

- 麻省理工学院 & 哈佛商学院 官方证书  
MIT & HBS Official Certificate
- 麻省理工学院 & 哈佛商学院 官方技能认证  
Certificate of Specialization
- 可发表科研论文  
A high-quality publishable paper
- 项目报告&演示海报  
Project Report
- 项目导师推荐信原件  
Recommendations
- 推荐信寄送  
Submissions of Recommendation Letters
- 导师领英推荐和背书  
LinkedIn Recommendation & Endorsement



# 参与Blended Learning 核心收获

How Can Blended Learning Help ?

- **交叉学科学术能力**  
Interdisciplinary knowledge
- **国际学术视野和校友网络**  
Academic Horizon and Network
- **MIT线下训练营免试名额**  
A Bootcamp Quota
- **适应全球的实操技术能力**  
Application Skills
- **完整项目经验**  
Project Experience
- **导师领英推荐或背书**  
LinkedIn Recommendation & Endorsement
- **国际企业机构工作推荐机会**  
Job Referral Opportunities
- **科研经验与能力**  
Research Experience and Skills



21 February 2022

To Whom It May Concern

We are pleased to confirm that Ms. [REDACTED] was employed by KPMG Huashen LLP Shanghai Branch from 1/17/2022 to 2/14/2022. Ms Liu was a trainee in our Audit department at the time of leaving the firm.

This is not a testimonial and if any further information is required in connection with Ms Liu's employment with KPMG Huashen LLP Shanghai Branch, we shall be pleased



# 超过100名 顶尖教授、研究员、行业专家、领先学者 组成了Blended Learning 教学团队

Lead Faculty



**J. Christopher Love**  
麻省理工学院  
化学工程教授  
科特高尔综合研究所成员



**Paul W. Barone**  
麻省理工学院  
生物医学创新中心 (CBI) 联合创始人  
Biomanufacturing@MIT CBI



**Stacy L. Springs**  
麻省理工学院  
生物医学创新中心项目的高级主任  
在生物制造计划执行主任



**Sanjay Sarma**  
麻省理工学院  
开放学习副院长兼机械工程专业教授



**Janice Hammond**  
哈佛大学  
语言、外语、语言制造专业教授  
和文化与社区高级副院长



**William Sahman**  
哈佛大学  
贝克基金会工商管理教授  
学院创业管理部门的联合创始人  
出版社董事会主席  
对外关系高级副院长



**Wojciech Matusik**  
麻省理工学院  
电气工程和计算机科学副教授  
计算机科学和人工智能实验室成员



**Emanuel Sachs**  
麻省理工学院  
机械工程教授  
美国国家工程院院士



**Youcef Mehrez**  
麻省理工学院  
计算工程中心主任  
航空航天计算设计实验室主任



**Nelson Repenning**  
麻省理工学院  
麻省理工学院系统动力学教授



**Bharat Anand**  
哈佛大学  
Henry R. Byers 工商管理教授  
和哈佛大学学习进步副教授



**Robert Simons**  
哈佛大学  
贝克基金会教授



**Heather Kulik**  
麻省理工学院  
化学工程系教授



**Richard Braatz**  
麻省理工学院  
化学工程系教授



**George Barbastathis**  
麻省理工学院  
机械工程系教授



**Ray Reagans**  
麻省理工学院  
麻省理工学院管理科学教授和  
组织学教授



**V. G. Narayanan**  
哈佛大学  
商业管理学院的荣誉教授



**Arthur Segel**  
哈佛大学  
贝克基金会管理实践教授  
TA Realty 的创始人



**Themistoklis Sapsis**  
麻省理工学院  
机械与海洋工程系教授



**Justin Solomon**  
麻省理工学院  
电气工程与计算机科学教授



**John Williams**  
麻省理工学院  
土木与环境工程系教授



**David Nino**  
麻省理工学院  
工程领导力研究生课程的高级讲师  
和奥佩项目助理



**Clayton Christensen**  
哈佛大学  
Kim B. Clark 工商管理教授



**Julie Battilana**  
哈佛大学  
Joseph C. Wilson 工商管理教授



**Markus Buehler**  
麻省理工学院  
工程力学教授  
土木与环境工程系主任



**Laurent Demanet**  
麻省理工学院  
应用数学系教授  
地球物理实验室主任



**Isaac Chuang**  
麻省理工学院  
物理与电气工程系教授  
数字学习中心高级副院长



**John Van Meenen**  
麻省理工学院  
组织学教授



**Rebecca Henderson**  
哈佛大学  
约翰和玛蒂亚·克拉克大学荣誉教授



**Stephen Graves**  
麻省理工学院  
管理学教授



**William Oliver**  
麻省理工学院  
电子研究实验室副主任  
电气工程系教授  
物理学教授暨林肯实验室研究员



**Peter Shor**  
麻省理工学院  
应用数学委员会主席  
应用数学系兼职教授



**Aram Amirkhanyan**  
麻省理工学院  
物理系教授



**Steven Soderstrom**  
麻省理工学院  
管理科学教授暨通用汽车 CEO



**Victoria Ivashina**  
哈佛大学  
Lovelace 金融全数字讲座教授



**Daniela Rus**  
麻省理工学院  
电气工程和计算机科学教授兼  
CSAIL 主任



**Bruce G. Cameron**  
麻省理工学院  
系统架构实验室主任



**Olivier L. de Weck**  
麻省理工学院  
航空航天工程系统教授



**Don O'Regan**  
麻省理工学院  
系统工程与研究中心主任



**Dev Dori**  
麻省理工学院  
系统设计与管理讲师



**Mihir Desai**  
哈佛大学  
摩根大通集团荣誉金融学教授  
和哈佛法学院法学教授



**John Sterman**  
麻省理工学院  
麻省理工学院管理学教授



**Adam Ross**  
麻省理工学院  
社会技术系统研究中心联合创始人  
暨研究员



**Warren Hoberg**  
航空航天系和麻省宇航局  
波音公司助理教授



**Lawrence Soderstrom**  
麻省理工学院  
城市规划与环境规划特聘教授



**Hamsa Balakrishnan**  
麻省理工学院  
麻省理工学院教授



**Srikant Datar**  
哈佛大学  
George J. Baker 行政学教授和院长  
哈佛创新实验室的兼职主席



**Edward F. Crawley**  
麻省理工学院  
航空航天工程教授

(部分短期证书课程及直播互动课程教授)



Live Session Series

# 6周直播互动课堂

## 课程时长

6周 每周- 2小时直播 + 2小时阅读

6 weeks, 2 live session hours/ week plus 2 hour pre-session readings

## 直播授课

教授导师直播授课, 实时转换字幕

Live Classes: Weekly Zoom live sessions with the Instructors

## PRE-SESSION READINGS

直播课程主题学习材料

Pre-learning: 5 weeks, receive study materials through emails



# 2022 暑期

# Blended Learning LIVE 回顾

## Live Session Series

## 6周直播互动课堂



2022夏季

BLENDED LEARNING LIVE  
内测课程主题 (6周)

**主题一：基于建模的系统工程**  
主讲教授：MIT 系统设计与管理教授、以色列理工学院企业系统建模实验室负责人

**主题二：人工智能**  
主讲教授：MIT 计算科学与工程中心联合主任

**主题三：量子计算**  
主讲教授：MIT 电子工程教授和量子纳米结构和纳米制造小组的联合负责人

**主题四：管理与领导力**  
主讲教授：MIT 工程领导力课程高级讲师

**主题五：人类学与心理学**  
主讲教授：MIT 发展认知神经科学家

**主题六：数据科学**  
客座讲师：Netflix 高级数据科学家

**主题七：科技创新与社会科学**  
客座讲师：宾夕法尼亚大学沃顿商学院研究员

Live Session Series 示例课表



Blended Learning Live (72322110)

1. 大家好，我是北京交通大学通信工程的彭彤，今年九月大四  
2. 想参与直播的一定要相关的各种详细，以及一箱箱高能学术的大  
项目，拿到了国家级的奖项  
3. 学习到MIT Blended Learning 的课程能提升研究\*\*\*，了解更多学  
科的知识，也为将来对研究生生涯的方向提供更多的消息。  
4. 希望在课程中能够与国外专家交流，也能够与国内的优秀的同学们建立  
连接。

大家好，我是上海交通大学电子与信息工程学院的  
1. 大家好，我是上海交通大学大一，专业是计算机，目  
前只做过一个关于CV的小项目，除此之外大的事情就只剩下吃饭和  
睡觉了。由于目前对相关研究领域的了解甚少，我希望能够在  
Blended Learning Live 中大展拳脚自己感兴趣的领域，为后续深入学习和  
研究做准备。希望这门课程能够让我从实际的课本和我的“面科学世  
界的了解，同时所讨论的能够在实际生活中应用一些优秀的学习经验，  
能够在今后保持联系共同进步，今后还请大家多多指教

大家好，基本信息都备注了，我下半年就是 sophomore 了，该怎么参  
加过项目和科研，有一点竞赛经历（真的只有一点），参加 live 项目也  
是更想深入地了解一些方面，细化自己的方向，希望参加本次课程能  
对这些感兴趣的方面有更深入的了解，认识更多的uu

大家好，我是苏州大学苏大医学 21 级临床医学专业，目前正在医  
学学院担任助理等职务  
我有幸参与第八届蓝桥杯+创新大赛，第二届江苏省生物医学工程创新  
设计大赛，小发明竞赛，并获得省一等奖  
我来到这里最大的期待就是希望能够发现自己的问题，并能翻译自己听  
学知识，为次来个人发展找一些适合自己的路  
我希望通过本次课程的学习我能受益匪浅，并能真正提升自己，同  
时我也希望能够认识更多的小伙伴，一起分享自己的生活，共同成长

大家好，我是 21 级周自凡，来自上海交通大学的银行与保险金融专业。  
我一直参加过大概共五篇过各种论文，这个暑假参加了学校的“数字千  
行”活动，我想参加这个项目主要是想学习一些数据分析和相关的课程和知  
识，这方面的提升对我将来项目的进行帮助很大，我对这个课程的盛大  
期待提升自己的数据分析能力，并且也希望可以认识一些同校的同学  
和大概一起努力，共同成长！

大家好，我是上海交通大学大三学生  
1. 科研小白，竞赛的我只参加过学校内部的比赛，希望大家多多帮助  
2. 希望能多了解各个领域的知识，然后让我更多优秀的同学，向大  
家学习

同学自我介绍示例

# 2022 暑期 Blended Learning LIVE 回顾

**QUANTUM TECHNOLOGIES: INDUSTRIAL PROSPECTS AND NEW RESEARCH FRONTIERS**

**LIVE SESSION DESCRIPTION**

The first Live Session begins by exploring what exactly makes technology “quantum.” After this introduction, the session will turn to exploring quantum computing, quantum communications, and quantum sensing. Each exploration will be rooted in industrial prospects, highlighting specific companies as well as the new uses for these new quantum technologies.

**SPEAKER**

**Karl Berggren**

Professor of Electrical Engineering and Co-Head of the Quantum Nanostructures and Nanofabrication Group at MIT

Prof. Berggren is a Professor of Electrical Engineering at Massachusetts Institute of Technology, Department of Electrical Engineering and Computer Science, where he leads the Quantum Nanostructures and Nanofabrication Group. He is also Director of the Nanostructures Laboratory in the Research Laboratory of Electronics and is a core faculty member in the Microsystems Technology Laboratory (MTL).

**SURROGATE MODELING FOR SIMULATIONS AND DATA IN ARTIFICIAL INTELLIGENCE**

**LIVE SESSION DESCRIPTION**

This Live Session is focused on introducing surrogate modeling techniques to attendees and, particularly, is focused on Gaussian process regression. In addition to introducing these methods to attendees, the live session also takes time to show how the technique works through multiple case studies, as well as discussing attendees about the pitfalls and limitations of using the technique. This is a great session for students looking to add another tool to their toolbox of approaches and techniques in the world of machine learning and data analytics.

**SPEAKER**

**Youssef Marzouk**

Co-director of the MIT Center for Computational Science and Engineering

Youssef Marzouk is a professor in the Department of Aeronautics and Astronautics at MIT and co-director of the MIT Center for Computational Science and Engineering. He is also a core member of MIT's Statistics and Data Science Center and Director of MIT's Aerospace Computational Theory Laboratory. His research interests lie at the intersection of computational and statistical inference with physical modeling. He develops new methodologies for uncertainty quantification, Bayesian modeling and computation, data assimilation, experimental design, and machine learning in complex physical systems.

**MODEL-BASED SYSTEMS ENGINEERING: INDUSTRIAL APPLICATIONS, THEORETICAL FOUNDATIONS, AND RESEARCH PROBLEMS PART 1**

**LIVE SESSION DESCRIPTION**

In this session, the field of systems engineering is introduced with a focus on model-based systems engineering. In particular, Object Process Methodology (or OPM) is discussed as the state-of-the-art approach to managing products throughout their lifecycle.

**SPEAKER**

**Dov Dori**

Co-director of the MIT Center for Computational Science and Engineering

Professor Dov Dori is a faculty lecturer in Industrial Engineering, and Head of the Strategic Systems Modeling Laboratory at the Faculty of Industrial Engineering and Management, Technion, Israel Institute of Technology. He is Fellow of IEEE - Institute of Electrical and Electronics Engineers, Fellow of INCOSE - International Council on Systems Engineering, and Fellow of IAF - International Association for Pattern Recognition.

Since 2000 he has been concurrently a Visiting Professor at MIT where he is currently Lecturer at SCM - Systems Design and Management Program. His research interests include model-based systems engineering, conceptual modeling of complex systems, systems architecture and design, software architecture engineering, and systems biology. Prof. Dori invented and developed Object Process Methodology (OPM), a recently published in ISO 15926. He has authored over 200 publications, including papers and conference papers, books, and book chapters. He is co-author of the book OPM: An Model Based Systems Engineering and related to it was co-chair of the international conference and workshops. Among the editorial boards, Prof. Dori was Associate Editor of IEEE Transactions on Pattern Analysis and Machine Intelligence, and currently he is Associate Editor of Systems Engineering.

- 教授介绍
- 课前阅读文献
- 直播课程链接
- 直播回放
- 课后练习每周定时发送

**1. Introduction**

In 1996, when the first digital camera was introduced, it was a revolutionary technology. It was a small, handheld device that could capture and store images in a digital format. This technology was a major step forward in the history of photography, and it paved the way for the digital revolution that we are living through today.

**2. The Digital Revolution**

The digital revolution has transformed the way we live, work, and play. It has changed the way we communicate, the way we learn, and the way we do business. The digital revolution has also changed the way we think about technology and the way we use it.

**3. The Future of Technology**

As technology continues to advance, we can expect to see even more dramatic changes in the way we live and work. The future of technology is bright, and it is exciting to think about the possibilities that lie ahead.

**4. Conclusion**

The digital revolution has changed the world, and it is changing it even more rapidly than ever before. We are living in a time of unprecedented technological change, and it is important to stay informed and to embrace the opportunities that this change offers.

**Fig. 2. Sample technologies that embody 4.0 features**

The digital revolution is transforming the traditional engineering into the new digital engineering (DE) paradigm. DE has been defined as “an integrated digital approach that uses collaborative sources of systems’ data and models at a continuum across disciplines to support lifecycle activities from concept through disposal.” (ODASDE 2017). This definition includes both data and models, so it is in line with the spirit of MBSE with emphasis on the cross-disciplinary connection throughout the life-cycle of the system. The DE ecosystem borrows an interconnected infrastructure, along with a methodology for exchanging data, information, and knowledge in a digital form from an omniscient source of truth.

Yet, while modeling of software systems and hardware systems have been evolving in parallel, little effort to integrate software engineering with systems engineering has been made. Despite the growing adoption of MBSE and its emergence as a critical enabler of the digital revolution—the transformation into the DE paradigm, a recent cross-industry survey of MBSE maturity and adoption (McDonnell et al., 2020) has shown that MBSE is still perceived as immature.

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# Blended Learning LIVE

## 课上与课下精彩瞬间

**OPM Resources**

- **Book (2002):** [Object-Process Methodology - A Holistic Systems Paradigm](#), Springer Verlag, Berlin, Heidelberg, New York, 2002.
- **Book (2016):** [Model-Based Systems Engineering with OPM and SysML](#), Springer, New York.
- **ISO Standard** [ISO 19450 OPM](#)
- **edX Course:** <https://www.edx.org/professional-certificate/israelx-model-based-systems-engineering>
- **Website:** [Enterprise Systems Modeling Laboratory](#) contains
  - journal & conference papers,
  - free OPCAT software, upcoming OPCLoud
  - presentations
  - projects
  - more...
- **OPCLoud:** <https://www.opcloud.tech/>
- **edX videos:** YouTube search "**MBSE OPM**"

Chenyang: OPM

Yunhao Liu: Thanks!

100 quiet

每堂课同学们积极开麦提问  
课后同学们对教授表示感谢

Blended Learning Live 072322(110)

我的相册

尹浩航 北京交通大学 电子与信息工程

陈双彩虹!

张天迪 兰州大学 物理科学与技术学

期末考试之后的彩虹霞

李牧童 中国科学技术大学 公共管理

是霞和虹

尹浩航 北京交通大学 电子与信息工程

难道不是在别的学校也能拍吗?

张天迪 兰州大学 物理科学与技术学

一位朋友

尹浩航 北京交通大学 电子与信息工程

陈

尹浩航 北京交通大学 电子与信息工程

霞和虹

尹浩航 北京交通大学 电子与信息工程

上面那个是霞吗

张天迪 兰州大学 物理科学与技术学

对

群内氛围轻松学术，由一道双彩虹引发的关于光折射与法布里伯罗干涉仪的讨论

# 2022 暑期 Blended Learning LIVE

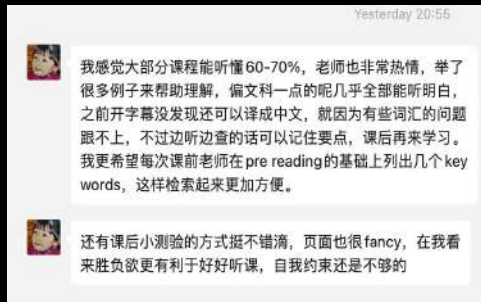
## 中国高校内测同学反馈

黄慧霞  
华南理工大学微电子学院

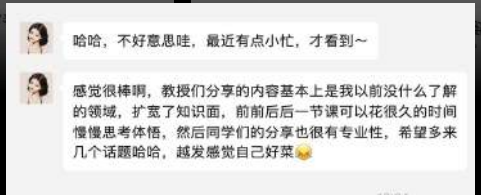
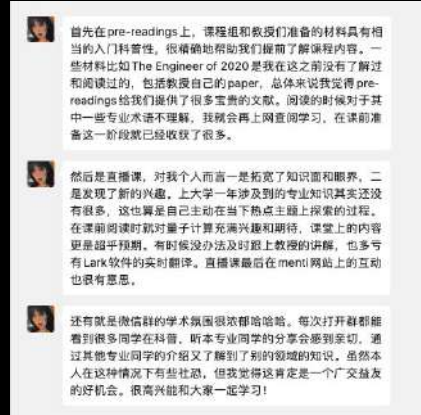
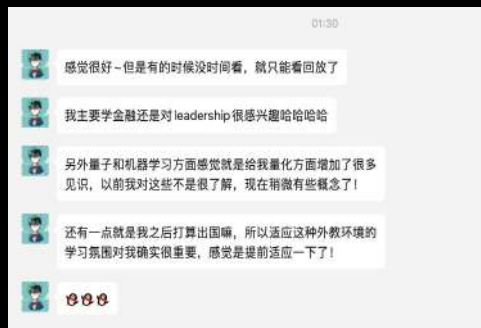
刘虹  
上海财经大学金融学院



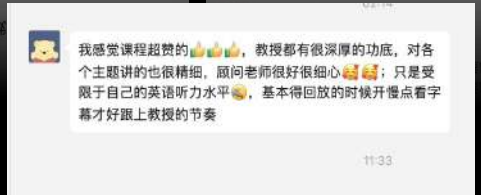
易小露  
北京中医药大学管理学院



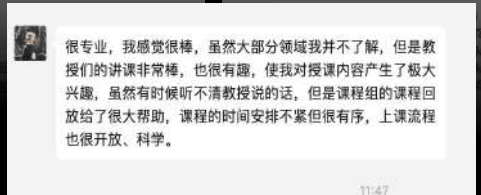
陈昱淼  
上海财经大学金融学院



江中子恩  
湖南大学信息学院



张明宇  
上海交通大学



高文卿  
北京中医药大学管理学院

# 什么是Certified SPOC？

What is Certified SPOC

## 课程形式

MIT/HBS 官方学习平台，电影级录播视频，游戏式课后测验

## 课程时长

3-8 周，（视具体课程）每周4小时左右

## 授课语音

全英文授课，提供可翻译字幕支持

## 课程收获

大学官方课程证书，学术分析报告，随顶尖教授学习专业技能

## 学习管理

Academic Mentor 提供选课指导

Academic Coordinator 组织开课答疑



# 2022年下半年可选 SPOC 短期证书课程 —— 9 大主题

Available fields of programs for 2022

先进制造业

Advanced Manufacturing

人工智能

Artificial Intelligence

量子计算

Quantum Computing

金融科技

Financial Technologies

数据科学

Data Science

创新企业家精神

Innovative Entrepreneurship

科技领域的领导力原则

Technical Leadership

商业战略与执行

Business Strategies

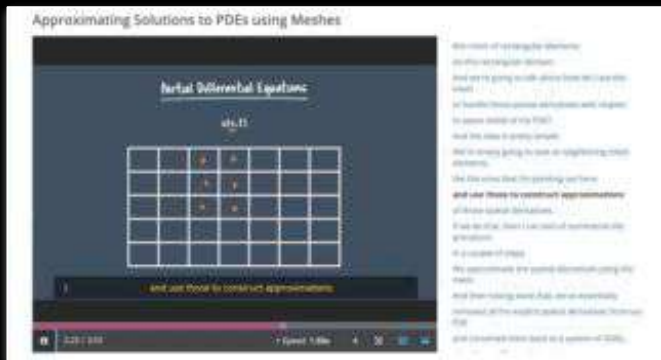
管理和系统思维

Management System



# SPOC学习平台 - MIT xPRO

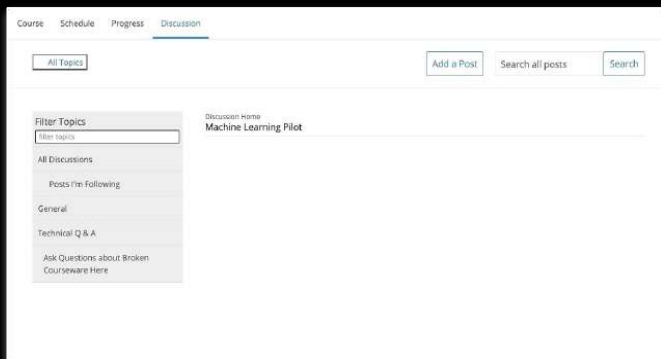
SPOC Learning Platform



01. 可下载滚动字幕及调速器 Subtitles and Speed Monitor



02. 学习轨迹数据分析 Learning Process Tracker



03. 课程平台讨论版 Discussion Panel



04. 课后测验 Assignments



# SPOC学习平台 - HBS

SPOC Learning Platform

## Restaurants and Cost of Debt

Often, companies within the same industry have similar capital structures. In this example – the restaurant industry – it's a little more complicated. Such a setting allows us to consider the cost of debt across companies with similarly stable cash flows. Let's see how that is reflected in four restaurant companies: Ruby Tuesdays, an American casual restaurant chain; Darden Restaurants, another casual restaurant chain which runs restaurants like Olive Garden and LongHorn Steakhouse; DineEquity, which franchises and operates IHOP and Applebees restaurants; and Yum!, which owns fast food restaurants like KFC and PizzaHut. Here are their debt levels and the market value of their equity. Try and match them with their Cost of Debt. (hint: remember that leverage adds risk)

Ruby Tuesdays	Darden Restaurants	DineEquity	Yum!
Debt: \$224 million	Debt: \$440 million	Debt: \$1,400 million	Debt: \$3,900 million

01. 案例分析 Case Studies

Harvard Business School Online

Welcome, Emily

Activity Feed

STUDENT DIRECTORY

02. 拓展全球人脉网 Networking

Show All Of My Questions And Answers

Show Questions With No Answers Only

ASK A QUESTION

DAVID ASKED A CONCEPTUAL QUESTION

I'm having trouble placing DineEquity and Darden Restaurants. Is there a simpler way of looking at this?

UPDATED FRIDAY AT 04:05 PM ET

03. 课程平台讨论版 Discussion Panel

transactions. By the end of this module, you will better understand many of these transactions and how to make the adjusting journal entries related to them.

Identify which of the following are explicit and which are implicit transactions and drag them to the correct section below.

FORMS

- SELLING GOODS TO CUSTOMERS ON CREDIT
- RECORDING SUPPLIERS' DEBIT TO THE DEBITOR'S PREVIOUS ACCOUNT
- RECORDING THE PAYEE'S SHARE OF PROFIT

EXPLICIT

- RECORDING CREDITORS' DEBIT TO THE DEBITOR'S ACCOUNT
- RECORDING THE BANK'S SHARE OF PROFIT

Attempt 1 of 1

04. 课后测验 Assignments

# BLENDED LEARNING MBA

IN COLLABORATION WITH

Harvard  
Business  
School  
Online

特别计划

## 全年 MBA 学习计划

从哈佛商学院获得真正的  
MBA 知识和经验

Gain authentic MBA know-how And Experience  
From HBS

### 可选修课程

- 3门 哈佛商学院短期证书课程
- 1门 直播互动课堂
- 1门 8周实操项目课程

### 项目成果

- 1份 HBS 官方技能认证证书
- 3份 HBS 官方课程证书
- 1份 项目完成证书及成绩分析报告
- 1份 项目报告和演示海报
- 1份 导师亲笔推荐信原件
- 3次 推荐信寄送

### 计划收获

- 国际认可的商业管理才能
- 交叉学科学术能力
- 国际视野和顶级商学院校友网络
- 完整项目经验

### 五个 MBA 方向

- 战略 Strategy
- 金融 & 财务 Finance & Accounting
- 领导力与管理 Leadership & Management
- 创业与创新 Entrepreneurship & Innovation
- 社会发展中的商业应用 Business in Society

# 哈佛商学院 案例分析法

## The HBS Case Method



MBA

FAQ INTRODUCE YOURSELF BLOG VISIT APPLY

ACADEMIC EXPERIENCE

ENTREPRENEURSHIP

STUDENT LIFE

CAREER PATH

ADMISSIONS

FINANCIAL AID

Harvard Business School → MBA → Academic Experience → The HBS Case Method

## The HBS Case Method



TAKE A SEAT IN THE MBA CLASSROOM

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READ STUDENT STORIES

REQUEST INFORMATION

VIEW APPLICATION GUIDE

JOIN EVENTS

APPLY

# Blended Learning MBA

## 5大课程方向

选一个方向进行其三门短期证书课程的学习

### Strategy 战略

战略执行  
Strategy Execution

管理者经济学  
Economics for Managers

可持续性商业策略  
Sustainable Business Strategy

### Leadership & Management 领导力与管理

Management Essentials  
管理要素

Strategy Execution  
战略执行

Power and Influence for Positive Impact  
产生积极影响的权力和影响力

### Business in Society 社会发展中的商业应用

Sustainable Business Strategy  
可持续性商业策略

Global Business  
全球商务

### Finance & Accounting 金融 & 财务

财务领导:制定财务决策  
Leading with Finance: Making Financial Decisions

财务会计  
Financial Accounting

另类投资:增加投资组合价值  
Alternative Investments: Grow Portfolio Value

### Entrepreneurship & Innovation 创业与创新

Entrepreneurship Essentials  
创业要领

Disruptive Strategy  
颠覆性战略

Design Thinking and Innovation  
设计思维与创新

# 2022年可选项目交叉方向

Available fields of programs for 2022

## 人工智能 X 交通

Artificial Intelligence X Transportation

## 人工智能 X 医疗

Artificial Intelligence X Healthcare

## 人工智能 X 材料

Artificial Intelligence X Materials

## 人工智能 X 金融

Artificial Intelligence X Finance

## 人工智能 X 技术

Artificial Intelligence X Technology

## 创新创业 X 娱乐

Innovative Entrepreneurship X Entertainment

## 创新创业 X 管理咨询

Innovative Entrepreneurship X Management Consulting

## 创新创业 X 设计

Innovative Entrepreneurship X Design

## 创新创业 X 金融

Innovative Entrepreneurship X Finance

## 创新创业 X 科技

Innovative Entrepreneurship X Technology

## 金融科技 X 区块链

Financial Technologies X Blockchain

## 金融科技 X 银行

Financial Technologies X Banking

## 商业策略 X ESG

Business Strategies X ESG

## 商业策略 X Games

Business Strategies X Games

## 商业策略 X 技术

Business Strategies X Technology

## 商业策略 X 环境

Business Strategies X Environment

## 商业策略 X 管理咨询

Business Strategies X Management Consulting

## 数据科学 X 供应链

Data Science X Supply Chain

## 数据科学 X 娱乐

Data Science X Entertainment

## 数据科学 X 心理学

Data Science X Psychology

## 数据科学 X 环境

Data Science X Environment

## 数据科学 X 社交媒体

Data Science X Social Media

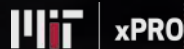
## 系统工程 X 技术

Systems Engineering X Technology

## 量子计算 X 技术

Quantum Computing X Technology

# 短期证书课程时间



Course	Week	Start Date	End Date	Start Date	End Date
Base SPOC: Machine Learning, Modeling, and Simulation Principles	6	10/29	12/10	1/16	2/27
Advanced SPOC: Applying Machine Learning to Engineering and Science	6	10/29	12/10	1/16	2/27
Base SPOC: Introduction to Quantum Computing	4	10/3	10/31	1/23	2/20
Advanced SPOC: Quantum Algorithms for Cybersecurity, Chemistry, and Optimization	4	11/7	12/5	5/15	6/12
System Thinking	5	10/3	11/7	1/30	3/6
Architecture of Complex Systems	5	9/26	10/31	4/10	5/15
Models in Engineering	4	11/7	12/5	1/16	2/13
Model-Based Systems Engineering: Documentation and Analysis	4	4/24	5/22	6/26	7/24
Quantitative Methods in Systems Engineering	4	2/20	3/20	5/29	6/26
Technical Innovation	3	10/24	11/14	2/6	2/27
Understanding Organizational Strategy and Capabilities	4	10/3	10/31	2/13	3/13
Negotiating and Applying Influence and Power	3	11/7	11/28	3/20	4/10
Navigating and Leveraging Culture and Networks	3	1/9	1/30	4/17	5/8
Discovering and Implementing Your Leadership Strengths	3	2/6	2/27	5/15	6/5
Negotiating to Create Value: The Mutual Gains Approach	4	10/3	10/31		
Principles of Biomanufacturing: Using Biotechnology to Manufacture Medicines	6	9/5	10/17	1/9	2/20
Additive Manufacturing for Innovative Design and Production	12	9/19	12/12		

Course	Week	Start Date	End Date	Start Date	End Date
Business Analytics	8	10/12	12/7	2/8	4/5
Economics for Managers	8	9/28	11/23	2/22	4/19
Financial Accounting	8	10/19	12/14	1/18	3/15
Sustainable Business Strategy	3	9/14	10/5	11/9	11/30
Global Business	4	10/5	11/2	2/1	3/1
Disruptive Strategy	6	9/28	11/9	10/26	12/7
Entrepreneurship Essentials	4	9/28	10/26	1/25	2/22
Leading with Finance	6	9/28	11/9	1/25	3/8
Alternative Investments	5	10/5	11/9	2/1	3/8
Management Essentials	8	10/19	12/14	1/18	3/15
Strategy Execution	8	9/14	11/9	10/12	12/7
Power and Influence for Positive Impact	6	10/5	11/16	1/18	3/1
Design Thinking and Innovation	7	10/5	11/23	2/1	3/22

# 实操项目课程时间

Hands-on Project	Start Date	End Date	Start Date	End Date
Algorithmic Trading - Bridgewater Project	9/19	11/13		
Intro to 3D Illustration - Pixar Project	9/19	11/13	1/23	3/19
Blended Reality - Solid Jellyfish Project	10/31	12/25	1/23	3/19
AI for New Frontiers in Energy and Environment - Shell Project	10/31	12/25	1/23	3/19
Natural Language Processing - Apple Siri Project	10/31	12/25		2/23
Intelligent Storage for Computing at the Edge of the Internet - Cisco Project	10/31	12/25	1/23	3/19
Business of Games - Nintendo Project	10/31	12/25	1/23	3/19
Technology Innovation and Its Relationship with Society - Intel Project	9/19	11/13		
Netflix PBL	12/12	2/5		
Empirical Research & Data Analytics in Operations Management - McKinsey Project	9/19	11/13		

Hands-on Project	Start Date	End Date	Start Date	End Date
Applying Entrepreneurial Theory to Build Better Startups - PayPal project	9/19	11/13	12/12	2/5
Innovation Management - Deloitte Project	9/19	11/13	12/12	2/5
Perspectives in Quantitative Finance - Morgan Stanley Project	10/17	12/11	2/6	4/2
Strategic Ownership - Walmart Project	10/17	12/11	2/6	4/2
Blockchain and AI in Financial Data Science - Galaxy Digital Project	9/19	11/13	2/6	4/2
Applied Psychology With Human Data - Neuralink Project	10/17	12/11	1/9	3/5
Machine Learning and Smart Transportation - Lyft Project	10/17	12/11	1/9	3/5
Pollution and Air Quality Analysis - GE Project	9/19	11/13		
Marketing for Social and Business Outcomes - BIT Project	1/9	3/5	1/9	3/5
Online Debate Models – Analyses, Metrics and Visualizations - Twitter Project	1/9	3/5	1/9	3/5
Computer Vision and Image Processing - Microsoft Project	2/27	4/23		
Machine Learning in Quantitative Finance - J.P. Morgan Project	9/19	11/13	1/23	3/19
AI: Machine Learning in Healthcare - Johnson & Johnson Project	10/17	12/11	2/27	4/23
AI: Deep Learning in Medical Imaging - Siemens Project	10/17	12/11	2/27	4/23
Exploring Placemaking in VR - Meta	10/17	12/11	2/27	4/23
Applied Quantum Algorithms - Psi Quantum Project	10/17	12/11		
Co-designing Quantum Computing Architecture - IBM Project	9/19	11/13		

# 科研项目课程时间

Research Project	Start Date	End Date
Machine Learning in Quantitative Finance - J.P. Morgan Project	09/19	12/18
Computer Vision and Image Processing - Microsoft Project	02/27	05/28
Natural Language Processing - Apple Siri Project	04/17	07/16
Technology Innovation and Its Relationship With Society - Intel Project	09/19	12/18
Exploring Placemaking in VR Towards a More Inclusive Metaverse - Meta Project	02/27	05/28
Intelligent Storage for Computing at the Edge of the Internet - Cisco Project	01/23	04/23
Applied Quantum Algorithms - Psi Quantum Project	10/17	01/14
Co-designing Quantum Computing Architecture	9/19	12/27
Machine Learning and Smart Transportation - Lyft Project	01/09	04/09
Applied Psychology With Human Data - Neuralink Project	01/09	04/09
AI for New Frontiers in Energy and Environment - Shell Project	04/17	07/16
Online Debate Models – Analyses, Metrics and Visualizations - Twitter Project	01/09	04/09
Blockchain and AI in Financial Data Science - Galaxy Digital Project	09/19	12/18
Marketing for Social and Business Outcomes - BIT Project	01/09	04/09
Blended Reality - Solid Jellyfish Project	01/23	04/23
Atomistic Simulation - Schrödinger Project	12/12	03/12
Machine Learning in Healthcare - Johnson & Johnson Project	10/17	01/14



# 秋季学期工作安排

合作流程	时间线	负责方
1. 课程组总结报告会议	09/08/2022	课程组&学校/院
2. 课程组提供会议备忘录及秋季学期课程材料	09/09/2022	课程组
3. 学校/院确定奖学金、学分认定政策	//2022	学校/院
4. 学校/院完成通知审核、编辑以及发布	//2022	学校/院
5. 课程组与学校/院协作开展专项宣讲会	//2022	课程组&学校/院