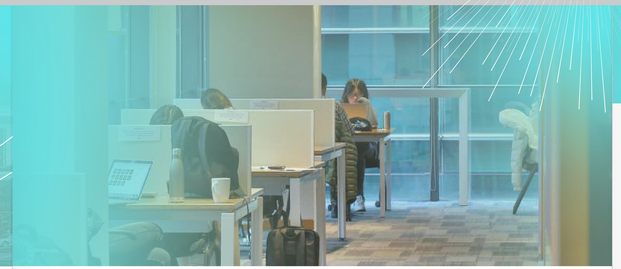
# NYU SHANGHAI

# DATA SCIENCE

Founded in 2012, NYU Shanghai is China's first Sino-US research university and the third degree-granting campus of the NYU Global Network. The university seeks to cultivate globally minded graduates through innovative teaching, world-class research, and a commitment to public service.

Data Science at NYU Shanghai is designed to create data-driven leaders with a global perspective, a broad education, and the capacity to think creatively. Data science involves using computerized methods to analyze massive amounts of data and to extract knowledge from them. Data science addresses a wide-range of data types, including scientific and economic numerical data, textual data, and image and video data. Some of the prominent subfields of data science include mathematical statistics, big data and databases, machine learning, natural language processing, artificial intelligence, and data-driven social science.



# EDUCATION & TRAINING

## Undergraduate Studies

**NYU Shanghai Degree** Undergraduate Studies in Data Science

NYU Shanghai students earn a Bachelor of Arts or Bachelor of Science degree conferred by New York University—the same degree awarded at our New York campus—as well as a Chinese diploma recognized by the Chinese government, qualifying graduates for opportunities both in China and around the world.

## Graduate Training

NYU Shanghai offers the following graduate program in related disciplines, providing candidates with academically rigorous training and extensive research experience in their field of study.

**NYU Shanghai Degree** Data Science PhD Program

NYU Shanghai, in partnership with the NYU Center for Data Science, seeks exceptional students for PhD study and research. Participating students are enrolled in the NYU GSAS Data Science PhD program, complete their coursework in New York, and then transition to full-time residence at NYU Shanghai where they undertake their doctoral research under the supervision of NYU Shanghai faculty.

**Highlights of the Program:**

- NYU degree upon graduation
- Graduate coursework at the NYU Center for Data Science in New York
- Research opportunities with and close mentorship by NYU Shanghai faculty
- Access to the vast intellectual resources of NYU GSAS and NYU Center for Data Science
- Cutting-edge research environment at NYU Shanghai, including the Center for Data Science and Artificial Intelligence, a thriving community of PhD students, post-doctoral fellows, and research associates, activities such as a regular program of seminars and visiting academics, and links with other universities within and outside China
- Financial aid through the NYU Shanghai Doctoral Fellowship, including tuition, fees, and an annual stipend
- Additional benefits exclusive to the NYU Shanghai program, including international health insurance and travel funds

# RESEARCH

## Center for Data Science and Artificial Intelligence at NYU Shanghai

NYU Shanghai Center for Data Science and Artificial Intelligence at NYU Shanghai is a focal point for NYU Shanghai's initiative in data science and AI. The Center was established in November 2015 to help advance NYU Shanghai's goal of creating one of China's leading data science/AI education and research facilities, and providing researchers and professionals with the tools to harness the power of big data. The Center's faculty members, research scientists and PhD students are established experts in the field of data science and AI and its applications. Their interests are in deep learning, machine learning, mathematical statistics, optimization, econometrics, and several application areas including sociology, economics, political science, history, privacy, business, finance, and genomics. Associated with the Center is an exciting Data Science undergraduate major. As it grows, the Center attracts professors and students whose primary research and teaching activities revolve around data science and AI.

## Data Science Theory

The center has a group of experienced researchers focusing on the mathematical foundations of data science and machine learning. Topics include reinforcement learning, optimization and computation, theory of machine learning, and high dimensional statistics. Our research aims to 1) establish theory to explain complicated models in modern data science, particularly in deep learning and AI; 2) develop new algorithms to efficiently solve large-scale computational problems in big data.

## Intelligent Transportation

Unlike traditional transportation systems, intelligent transportation systems emphasize the application and integration of various innovative technologies to provide safer, more efficient and environmentally friendly transportation services, and enable users to be better informed and make smarter decisions. These technologies include, but are not limited to, advanced computer technologies, communication technologies, sensing technologies, information technologies, and control technologies. Given the proliferation of real-world traffic data, we attempt to conduct a comprehensive analysis of traveler behavior, explore the action mechanisms of different traffic participants, construct travelers' behavioral models, and build a multi-agent-based simulation framework to model real-world traffic operations and management. Based on the established simulation platform, we propose to design deep reinforcement learning algorithms to facilitate better decision makings and improve the performance of the transportation system. Ultimately, we aim to develop a customizable platform that integrates a wide variety of traffic data and artificial intelligence methods for pilot testing and real-world applications.

## Data-Driven Humanities

Data-Driven Humanities courses incorporate data literacy with more conventional modes of humanistic inquiry in order to understand the experiences of ordinary people—how they live, work, and leisure. The aim is to address two curricular gaps. First, is the absence of meaningful engagement with data in humanities classes. This is especially important when studying marginalized populations, who left scanty to no records authored in their own voice that students could use to understand their experiences. The second curricular gap is space for learning the context in which the data was produced. Data is the product of humans, whose intentions, biases, and shortcomings influence data collection, interpretation, and presentation, and whose impact should be accounted for in interpretations of that data.


## Deep Learning and Artificial Intelligence

Based on an algorithmic paradigm called "neural networks," deep learning is a machine learning technique that teaches computers to do what comes naturally to humans: learn by example. Deep learning is the key technology behind modern advances in computer vision applications such as driverless cars and disease classification from medical images; in natural language processing, such as machine translation and speech recognition; and in sequential decision making, such as beating grandmasters at Go and teaching robots to perform complex tasks. At NYU Shanghai, we are passionate about research and education in machine learning, deep learning, and AI in general. Our world class faculty work in a wide-range of machine learning topics, including computer music, deep reinforcement learning, natural language processing, computer vision, and AI applied to financial applications. Our faculty not only work closely with PhD students, but also actively engage undergraduates in cutting-edge research.

# FACULTY

*By Alphabetical Order of Last Name

**Bruno Abrahao**
Assistant Professor of Information Systems and Business Analytics, NYU Shanghai
**Email:** abrahao@nyu.edu
Bruno Abrahao is an Assistant Professor of Information Systems and Business Analytics at NYU Shanghai. He is also a faculty member in the Center for Data Science and Artificial Intelligence. Abrahao holds a PhD in Computer Science from Cornell University and was a Postdoctoral Fellow at Stanford University, affiliated with the Computer Science and with the Sociology departments, as well as a Postdoctoral Researcher at Microsoft Research AI.Abrahao's research largely focuses on the role of technology and Artificial Intelligence in social systems.

**Yuxin Chen**
Dean of Business, Director of NYU Shanghai CBER
Distinguished Global Professor of Business, NYU Shanghai
**Email:** yc18@nyu.edu
Yuxin Chen is the Dean of Business and Distinguished Global Professor of Business at NYU Shanghai. He also holds an affiliated appointment in the Department of Marketing at the NYU Leonard N. Stern School of Business. Prior to joining NYU Shanghai, he was the Polk Brothers Professor in Retailing and Professor of Marketing at the Kellogg School of Management at Northwestern University. He was also previously an Associate Professor of Marketing at NYU Stern. Dean Chen's primary research areas includes areas such as Data-driven Marketing, Internet Marketing, Competitive Strategies, and Bayesian Econometric Methods. His research has appeared in publications such as Information Systems Research, Journal of Marketing Research, Management Science, Marketing Science, and Quantitative Marketing and Economics.

**Zhibin Chen**
Assistant Professor of Engineering, NYU Shanghai
**Email:** zc23@nyu.edu
Zhibin Chen is an Assistant Professor of Engineering, NYU Shanghai. Prior to this appointment, he was a research fellow in the Department of Civil and Environmental Engineering at the University of Michigan, Ann Arbor. Dr. Chen's research goal is to identify, develop, and implement emerging technologies to achieve a safer, more efficient, and environment-friendly transportation system. He was the recipient of the Stella Dafermos Best Paper Award and the Ryuichi Kitamura Paper Award at the 95th TRB Annual Meeting.

**Gang Fang**
Assistant Professor of Biology, NYU Shanghai
**Email:** gf54@nyu.edu
Gang Fang is an Assistant Professor of Biology, NYU Shanghai. He is also affiliate assistant professor in the Department of Biology and Center for Genomics and Systems Biology at NYU's campus in New York City. Prior to joining NYU Shanghai, he was an associate research scientist at Yale University. He holds a PhD from Institute Pasteur, France, and BS and MS degrees from Peking University, China. Fang's research interests are genomics, molecular evolution, and computational biology. He has developed the concept of gene evolutionary persistence and employed this concept in the studies of genome organization, proteome evolution, and transcriptome and biology networks.

**Li Guo**
Assistant Professor of Practice in Data Science, NYU Shanghai
**Email:** lg154@nyu.edu
Li Guo is an Assistant Professor of Practice in Data Science at NYU Shanghai. Guo's research and technical skills center around statistical analysis. She incorporates this specialty to perform research into deep neural networks to study natural language processing and computer vision. Guo also specializes in machine learning models, including generalized linear models, logistic regression, and cluster analysis. Prior to joining NYU Shanghai, Guo worked as a data scientist with Alibaba Groups and as a statistician with Kelley Blue Book. Her research has appeared in the Australian & New Zealand Journal of Statistics and the American Journal of Cosmetic Surgery.

**Mathieu Laurière**
Assistant Professor of Mathematics and Data Science, NYU Shanghai
**Email:** ml5197@nyu.edu
Mathieu Laurière is an Assistant Professor of Mathematics and Data Science at NYU Shanghai. Prior to joining NYU Shanghai, he was a Postdoctoral Research Associate at Princeton University in the Operations Research and Financial Engineering (ORFE) department. He obtained his MS from Sorbonne University and ENS Paris-Saclay and his PhD from the University of Paris. Before joining Princeton University, he was a Postdoctoral Fellow at the NYU-ECNU Institute of Mathematical Sciences at NYU Shanghai. Most recently, Mathieu was a Visiting Faculty Researcher at Google Brain, for the Brain Team (Paris).

**Shuyang Ling**
Assistant Professor of Data Science, NYU Shanghai
**Email:** sl3635@nyu.edu
Shuyang Ling is an Assistant Professor of Data Science. Prior to joining NYU Shanghai, he was a Courant Instructor/Assistant Professor at the Courant Institute of Mathematics and Center for Data Science, New York University, from 2017-2019. Ling's research focuses broadly on the mathematics of data science. He is interested in tackling inverse problems from engineering applications and extracting meaningful information from large-scale and heterogeneous datasets. His research involves a broad spectrum of subjects including optimization, probability, statistics, computational harmonic analysis, and numerical linear algebra.

**Keith Ross**
Dean of Computer Science, Data Science, and Engineering,
Professor of Computer Science, NYU Shanghai
**Email:** kwr200@nyu.edu
Keith Ross is the Dean of Computer Science, Data Science, and Engineering, a Professor of Computer Science at NYU Shanghai. He also holds an affiliated appointment with the Department of Computer Science at the Courant Institute of Mathematical Sciences and with the Center for Data Science at NYU. He is an ACM Fellow and an IEEE Fellow.

**Yik-Cheung (Wilson) Tam**
Professor of Practice in Computer Science
**Email:** yt2267@nyu.edu
Yik-Cheung (Wilson) Tam is a Professor of Practice in Computer Science at NYU Shanghai. From 2017 to 2020, he was a principal NLP scientist and manager at WeChat AI focusing on research and development for Xiaowei, a virtual personal assistant, and music recommendation. From 2015 to 2017, Wilson was a senior NLP scientist and manager at Microsoft (Suzhou) working on natural language understanding for Cortana, Microsoft's virtual personal assistant. He has six years of research experience in the United States, including with SRI international (formerly Stanford Research Institute), and Nuance communications Inc.

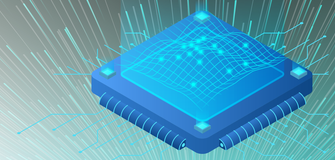
**Christina Dan Wang**
Assistant Professor of Finance, NYU Shanghai
**Email:** dw117@nyu.edu
Christina Dan Wang is Assistant Professor of Finance, NYU Shanghai. Prior to joining NYU Shanghai, Wang was an Assistant Professor in the Department of Statistics at Columbia University and a Postdoctoral Researcher in the Operations Research and Financial Engineering department and at the Bendheim Center for Finance at Princeton University.

**Hongyi Wen**
Assistant Professor Faculty Fellow of Computer Science
**Email:** hw3242@nyu.edu
Hongyi Wen is an Assistant Professor Faculty Fellow of Computer Science at NYU Shanghai. Professor Wen received his BEng in Computer Science and Technology from Tsinghua University in 2016. He holds a PhD in Information Science from Cornell University, where he was fortunate to work with Professor Deborah Estrin. His research interest lies in developing human-in-the-loop machine learning systems for improving the long-term values of personalizations.

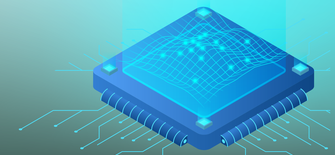
**Gus Xia**
Assistant Professor of Computer Science, NYU Shanghai
**Email:** gxia@nyu.edu
Gus Xia is an Assistant Professor of Computer Science, NYU Shanghai. Professor Xia also holds an affiliated faculty appointment with NYU Tandon. He holds a PhD in Machine Learning from Carnegie Mellon University, where he worked with Prof. Roger Dannenberg.

**Jiding Zhang**
Assistant Professor of Operations Management
**Email:** jz4788@nyu.edu
Jiding Zhang is an Assistant Professor of Operations Management at NYU Shanghai. As an empiricist, she is passionate in applying and developing data science tools to solve novel challenges in business. Combining causal inference and machine learning methods, her work provides practical insights and recommendations for digital platforms and FinTech. Her research has appeared in leading academic journals and has been recognized with multiple awards. Jiding obtained her PhD from the Operations, Information and Decisions Department of the Wharton School, under supervision of Professors Senthil Veeraraghavan, Ken Moon and Sergei Savin.

# NYU SHANGHAI DATA SCIENCE



NYU 上海 SHANGHAI 纽约大学



# NYU SHANGHAI DATA SCIENCE