GSAS | FinAI Postgraduate Diploma Program

FinAI Postgraduate Diploma Program

Why Study FinAI?

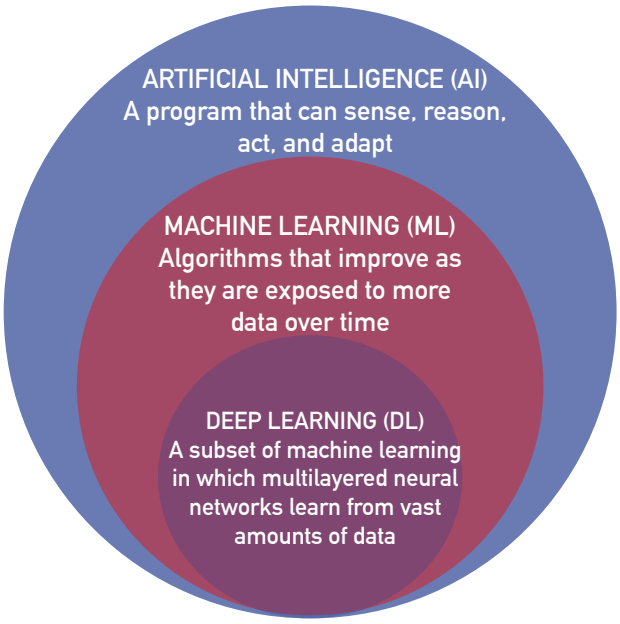
In the past decade, the financial industry has seen extraordinary disruption and innovation with rapid acceleration during the recent pandemic. Financial professionals can benefit from enhancement of their **AI technical skills** in order to **future-proof their careers**.

By studying FinAI and becoming a **power user of the latest data science and AI toolbox**, participants will be well positioned for advancement and opportunities. Many leading companies, including Alibaba, Tencent and JD, have been seeking FinAI talent with strong technical backgrounds.

The GSAS Postgraduate Diploma Program in FinAI will provide participants with an opportunity to learn the latest technical developments in AI through **lab-intensive and hands-on curriculum**. Students will acquire the latest AI knowledge and experience from state-of-the-art content developed by the world's leading universities and delivered by top academic instructors with industry experience.

EARN A DIPLOMA

A Postgraduate Diploma issued by Hong Kong Graduate School of Advanced Studies will be awarded to students who have successfully completed the program. Credits can be transferred to Master's and Doctoral programs to be offered at GSAS and partner schools for students who want to further their studies.



Program Overview

An **in-depth understanding of AI technology** will enhance students' competitiveness in the finance profession. The FinAI Postgraduate Diploma Program, offered by GSAS, will provide that pathway for financial professionals to acquire technical AI knowledge and secure their position in the workplace.

The FinAI Postgraduate Diploma Program is designed especially for **financial professionals without a computer programming background** and is relevant to all sectors including commercial banking, investment banking, insurance, asset management, hedge funds, crypto management, supervision and regulation, auditing, consulting, and IT and software development. The program is appropriate for all functions in these sectors, including risk management, sales and trading, portfolio and wealth management, back-office and reporting, information technology, and financial engineering. The program is also appropriate for corporate treasury and finance professionals at manufacturing and service firms. The program also allows recent graduates to enhance their AI skills to find more innovative solutions to financial challenges.

10 month program, 2 month terms

Courses are delivered on weekday nights and weekends to accommodate even the busiest of professionals.

5 Individual Courses + 1 Foundation Course

A prerequisite foundation course is offered to assist students without a computer programming background to tackle further courses that cover applied machine learning, deep learning, data science, computing for finance, culminating with a capstone project to apply newly acquired AI skills to solve a real world finance problem.

Professional Networks

Students with different backgrounds, interests, and experiences are brought together, which makes for a friendly and supporting learning environment. In addition, the program promotes regular panel discussions featuring senior financial services executives practicing AI in their companies to help students build connections.

Is this Program Right For You?

- Risk Managers and Officers
- Trading and Sales Personnel
- Porfolio Managers
- Wealth Managers
- Back-Office and Reporting
- IT Personnel
- Financial Engineers
- Business Consultants

Curriculum

The courses are designed to take a practical approach through **active learning and intensive lab assignments**. AI models and methods are applied in a hands-on fashion to real finance problems. The courses feature data-driven examples and in-class exercises that are designed to reinforce learning. Every course ends with a final exam or a project.

GSAS strives to offer more up to date courses by incorporating the latest content from leading universities including **MIT, Stanford, Harvard and Berkeley** delivered through Coursera, EdX, etc. This cutting-edge international content is complemented with practical examples from China's growing finance industry, resulting in a combination of the best international and local learning experience for industry-minded students.

CURRICULUM

EECS 580 Foundations of Data Science in Finance

This foundation course is **a prerequisite** for the FinAI Postgraduate Diploma Program. Students who have the required background need not take this course.

Prior programming or advanced mathematical background is **not required** for this course. It is prepared specifically for students who have not previously taken statistics or computer science courses, and is especially helpful for those who want to **learn Python programming**, refresh statistics knowledge, and apply basic data science practices.

This course combines **three perspectives**: inferential thinking, computational thinking, and finance relevance. The course teaches critical concepts and skills in computer programming and statistical inference, in conjunction with hands-on analysis of real-world finance datasets, including economic data, financial markets data, geographical data, and social networks.

EECS/BUS 650 Data Science for Finance

This course explores the **data science lifecycle**, including question formulation, data collection and cleaning, exploratory data analysis and visualization, statistical inference and prediction , and decision-making, with **applications in the financial industry**. The class focuses on quantitative critical thinking and key principles and techniques needed to carry out this cycle. These include languages for transforming, querying and analyzing data; algorithms for machine learning methods including regression, classification and clustering; principles behind creating informative data visualizations; statistical concepts of measurement error and prediction; and techniques for scalable data processing.

EECS/BUS 651 Computing for Finance

This course teaches the **application of Python programming**, with a strong focus on **solving problems in finance**, particularly in secondary market trading, quantitative modeling and forecasting. Advanced techniques such as object-oriented programming (OOP), input/output (I/O) operations, and parallel computing are discussed in detail. Students will participate in group projects, where various teams will collaborate to solve real-world financial problems.

EECS/BUS 654 Applied Machine Learning in Finance

This course provides a broad introduction to **machine learning** and **statistical pattern recognition**. This class presents algorithms and approaches in such a way that grounds them in larger systems, covering a variety of topics, including: **supervised learning** (generative/discriminative learning, parametric/non-parametric learning, neural networks, support vector machines), **unsupervised learning** (clustering, dimensionality reduction, kernel methods), and reinforcement learning. The course will also discuss recent applications of machine learning, such as to robotic control, data mining, autonomous navigation, bioinformatics, speech recognition, text and web data processing with particular emphasis on analysis of financial data.

EECS 655 Deep Learning

Deep learning is a type of machine learning, and has achieved great power and flexibility by learning to represent the world as a nested hierarchy of concepts. This course offers a deep dive into the latest developments in artificial intelligence. This course covers the most established and state-of-the-art deep learning algorithms such as **Deep Neural Networks, Convolutional Neural Networks, Recurrent Neural Networks**, Generative Adversarial Networks, and Network Deployment, and builds projects in Tensorflow / PyTorch and Scikit-Learn / Pandas / NumPy.

EECS/BUS 658 Capstone Project

Through this capstone project course, students will be arranged into groups and will **utilize advanced AI techniques** to **solve a practical finance problem**. Topics include: 1. Research and implement a profitable algorithmic stock trading strategy with the Limited Order Book high frequency data in the China capital markets. 2. Utilize the latest Natural Language Processing techniques to analyze market sentiments and to forecast stock price movements. 3. Research and implement a profitable derivatives trading strategy in the China capital markets. 4. In-depth research to improve deep-learning algorithms for

Career Development and Job Placement

GSAS' FinAI Postgraduate Diploma Program enrolls a select number of students each year. Small class sizes enable students to enjoy stronger relationships with both the faculty and fellow participants. The program's intense focus on practical data science, AI skills and career development will lead to enhanced job opportunities.

GSAS also works to provide internship opportunities for our graduates to experience a full-time position at prestigious financial institutions.

FACULTY AND ADVISORS

The FinAI Postgraduate Diploma Program features faculty and advisors of seasoned financial practitioners. They will be responsible for guiding students through this exciting learning journey.

Professor Hongsong CHOU

Hongsong CHOU has been a finance professional for almost 20 years, holding senior positions with Lehman Brothers, Nomura and Citic Securities. Hongsong is a lecturer of Financial Mathematics Program at the University of Chicago, serves on the advisory board of the Crypto-FinTech Laboratory of Hong Kong University of Science and Technology, co-founded Charles River Advisors, and is a Visiting Professor at Shanghai Advanced Institute of Finance. His research area includes price formation processes at microstructure levels and trading behavior analysis with high-frequency data, as well as agent-based trading simulation and order book dynamics modeling for regular and crypto assets. Hongsong holds a Ph.D. from Harvard University.

Professor Yiming LIANG

Yiming LIANG has over 20 years of finance industry experience, holding senior positions at various investment banks, such as managing director and head of financial markets at Huatai Holdings, managing director at Standard Chartered Bank, and head of structured solutions at JP Morgan Asia. He also serves as the board of director at the innovative online Livi Bank in Hong Kong. Yiming is an Adjunct Professor at Hong Kong Chinese University (Shenzhen). His research interests include financial derivatives valuation and risk management and its applications in structured investment products and asset securitization; crypto assets and security tokenization; Fintech applications to trading operations. Yiming holds a Ph.D. from University of California at San Diego.

Professor Tao ZUO

Tao ZUO enjoys twenty years of experience as researcher, practitioner and professor in the FinTech Industry with first-hand experience applying cutting-edge technologies in trading, clearing and risk management. He held senior industry roles including: managing director at Hong Kong Exchanges and Clearing Limited; chief architect at Dalian Commodity Exchange; associate director of enterprise architecture at CME Group. Tao is well-recognized for his expertise in high-performance, high-availability, low latency electronic trading systems, and risk management systems in the novel digital-currency assets class. He serves as on the Technical Committee to the Board at China Securities Depository and Clearing Corporation Limited. Tao holds a Ph.D. from York University.

Professor Guang YANG

Guang has worked at many leading investment banks and hedge funds, including Citibank, Merrill Lynch, Numerix, Morgan Stanley and Citadel Investment. He is also a co-founder of Sunshine Quantitative Trading firm. Guang is a quantitative modeling and trading expert, with rich experience in exotic options, fixed income derivatives, credit derivatives and structured financial products. He has developed models for pricing, hedging and trading, with applications to tens of billions of financial product positions. Guang also serves as a visiting Professor at the South China Statistics Center of Sun Yat San University. Guang holds a Ph.D. from Cornell University.

Weifeng is a prolific researcher in artificial intelligence, with publications in pattern recognition and machine learning: large scale deep learning, sequential signal processing, deep transfer learning, deep metric learning, weakly supervised learning, generative models, knowledge distillation; time series model: limit order book data, high frequency trading, algorithmic trading; and computer vision: face recognition, object recognition, object detection, semantic segmentation, image retrieval, person re-identification, 3d object tracking, image super-resolution. His research publications have reached 500 citations. Weifeng holds a Ph.D. from Hong Kong University.

Professor Weifeng GE

Tom BAIN

Tom Bain has senior management experience that includes 12 years as a Managing Director at JP Morgan, and 3 years as a director at Barclays Wealth. Tom's experience with JP Morgan includes Fixed Income Sales head in Japan, Emerging Market Strategies, and EMEA Market Client Strategies. He is an expert in providing training, consulting, and executive coaching to a number of the world's top investment banks in the Asia Pacific region. He is an adjunct faculty of finance at the Chinese University of Hong Kong where he teaches MBA and MS Finance programs. He is also a Professor of Science Practice in Financial Mathematics at the Hong Kong University of Science and Technology.

Chak Wong is a seasoned financial service professional and a high achieving academic scholar. He has over twenty years of rich experience bridging financial and academic institutions. His industry experience includes: managing director and head of London machine learning centre at JP Morgan; managing director and head of AI quant development at PingAn asset management. His academic experience includes: Professor of Finance Practice at The Chinese University of Hong Kong, program director of MS Finance; Professor of Practice in Mathematics at The Hong Kong University of Science and Technology. His research interests include macroeconomic impact of banking and theoretical modeling of financial systems. Chak holds a Ph.D. from the University of Oxford, and was a Rhodes Scholar of Hong Kong.

Chak WONG

Application Process

How do you Apply?

To apply for admission to the FinAI Postgraduate Diploma Program, students are required to possess a bachelor degree from an accredited institution and to successfully pass an interview among other conditions specified on the school website.

To be considered for admission, you must submit the following through the school website or with our program advisor:

•Completed application form
•Copy of transcripts
•Resume
•Personal Statement
•HK$200 application fee

Straight-A Scholarship

Be rewarded for maintaining a straight-A GPA with a scholarship to support your studies.

Program Tuition

The Application Fee is HK$200 and the Registration Fee is HK$4800.
*The HK$200 application fee is non-refundable, regardless whether the student is accepted to the program or not.
*The HK$4800 registration fee will be only charged once a student accepts the admission offer and the registration fee is non-refundable. The registration fee will be counted towards the the tuition fee payment.

The total tuition fee of the FinAI Postgraduate Diploma Program is HK$100,000 which covers
1.Lecture / tutorial fee for all 5 courses
2.Learning materials
3.Assessment fee
Students who need to take the foundation prerequisite course will be charged additional HK$20,000 tuition fee.

About GSAS

Hong Kong Graduate School of Advanced Studies (https://gsas.edu.hk) is a nonprofit technology focused school with the mission to train a critical mass of talented graduate students to excel at the intersection of advanced technology and industry application. Our strategy is to utilize the latest learning technologies for efficient teaching; to partner with the world's leading universities for course content and faculty expertise; to partner with Greater Bay Area's leading industries for practical applications. Our organization has twenty years' of experience in working with the world's leading universities, including Harvard Law School, MIT Professional Education, Stanford Engineering School, Stanford Law School, etc.

To apply or for more information about the program, please visit our website or contact our program advisor:

Hong Kong Graduate School of Advanced Studies

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