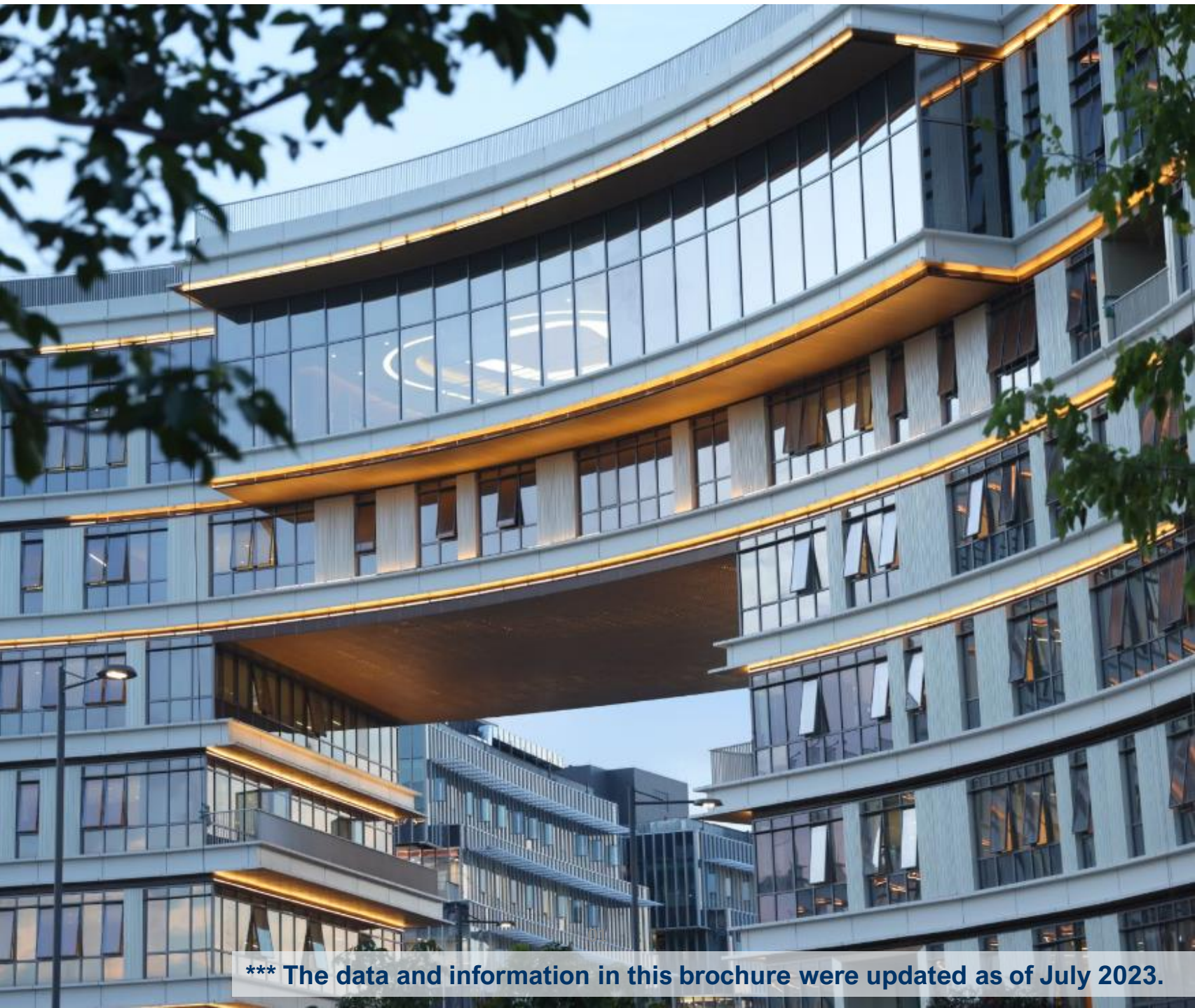


HKUST(GZ) SOCIETY HUB FINANCIAL TECHNOLOGY THRUST

POSTGRADUATE
PROGRAMS



ABOUT FINTECH THRUST

Mission

Financial Technology Thrust

nurtures creative minds to explore frontiers in Financial Technology by employing advanced technologies to improve financial services, promote financial innovations, and establish more efficient financial systems.

Cross-Disciplinary Focus Areas

- Blockchain technology, smart contracts, and digital currencies
- Robo advising, quantitative investing, and risk management
- Machine learning, artificial intelligence, and big data analytics in finance
- Technological innovations for financial services
- Regulatory issues and challenges in FinTech
- Digital economy and financial inclusion

Thrust Head of FTEC



Prof. Ning CAI
Professor

Ning Cai joined The Hong Kong University of Science and Technology (Guangzhou) as Professor and Acting Head of Financial Technology Thrust in 2022. Prior to that, he joined the Department of Industrial Engineering and Decision Analytics at The Hong Kong University of Science and Technology (HKUST) in 2008 and was promoted to Associate Professor in 2014 and to full Professor in 2020. Ning Cai received both MS and PhD in operations research in the Department of Industrial Engineering and Operations Research at Columbia University and both BS and MS in probability and statistics in the School of Mathematical Sciences at Peking University.

Ning Cai was the founding Academic Director of the Master of Science Program in Financial Technology (MSc in FinTech) at HKUST, which was jointly offered by School of Business and Management, School of Engineering, and School of Science. He also served as the Director of the Financial Engineering and FinTech Laboratory in the Department of Industrial Engineering and Decision Analytics at HKUST.

Ning Cai's research interests include FinTech, financial engineering, risk management, data science, applied probability, and stochastic modeling. He has published papers in the top-tier journals such as Management Science, Operations Research, Mathematical Finance, Mathematics of Operations Research, and INFORMS Journal on Computing.

Currently he serves as associate editor or editorial board member of 7 international scholarly journals, including Operations Research (one of the flagship journals of INFORMS) and Digital Finance (a Springer journal that publishes high-quality papers on smart data analytics, investment innovation, and financial technology).



PHD PROGRAM IN FTEC

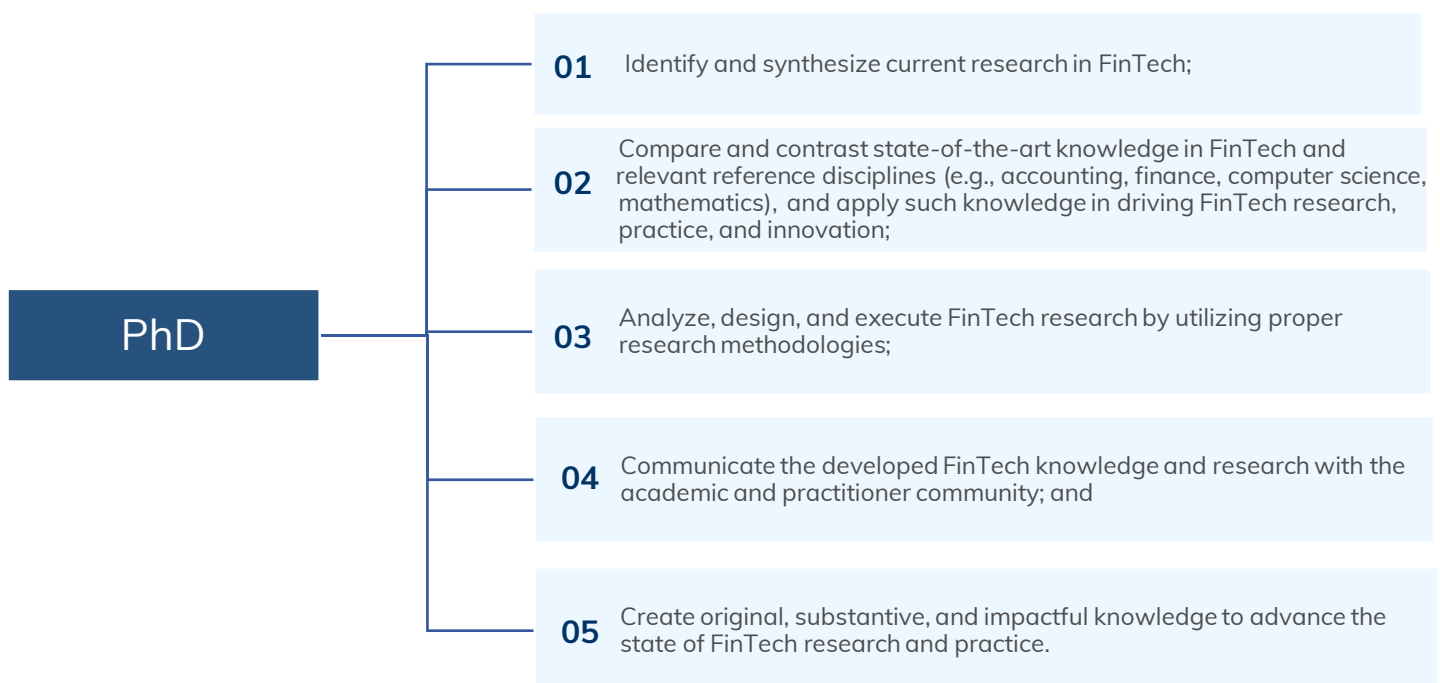
Financial Technology (FinTech) is an important emerging area that has been developing rapidly in recent years. It refers to the application of cutting-edge technologies and advanced analytics on various financial services and financial challenges, such as digital payments, robo advising, algorithmic trading, blockchain technologies, big data analytics, and central bank digital currencies, aiming to improve service efficiency, promote financial innovations, and increase end-user satisfaction.



Doctor of Philosophy (PhD) Program in Financial Technology provide training and education for students to undertake advanced research and have a sound grasp of developments in FinTech. Students graduating from these programs should be able to conduct and apply high-quality research that makes an impact on FinTech research and practice in academia and/or industry. The programs focus on advanced research with an aim to place graduates in academia, research institutes, and industry jobs that appreciate research capability and quality.

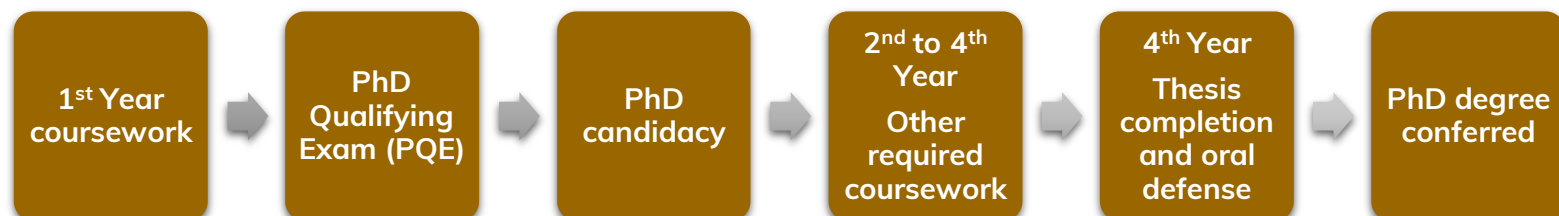
Learning Outcomes

On successful completion of the PhD program, graduates will be able to:



PHD PROGRAM IN FTEC

Normative PhD duration: 4 years



Postgraduate Programs 2024/25

Admission to HKUST(GZ)

Award Title	Doctor of Philosophy in Financial Technology
Program Short Name	PhD(FinTech)
Mode of Study	Full-time
Normative Program Duration	PhD Full-time: 3 years (with a relevant research master's degree), 4 years (without a relevant research master's degree)
Offering Unit	Financial Technology Thrust Area Society Hub
Program Advisor	Program Director: Prof Ning CAI, Professor of Financial Technology
Website	https://gz.ust.hk/academics/four-hubs/society-hub
Enquiry	ftect@hkust-gz.edu.cn

PHD PROGRAM IN FINANCIAL TECHNOLOGY THRUST CURRICULUM DESIGN

- Core Courses + Required Course + Electives = 21 credits for PhD in minimum
- To meet individual needs, students will be taking courses in different areas, which may include but not limited to courses and areas listed below.

Course Type	Course Code	Course Title	Credits
Core Courses (6 credits)	IIMP 6030 OR IIMP 6010	IIMP 6030 Cross-disciplinary Design Thinking I OR Cross-disciplinary Research Methods I	2
	SOCH 5000	Technological Innovation and Social Entrepreneurship	2
	XXXX 5000	Hub Core Course of other 3 Hubs	2
Required Course (3 credits)	FTEC 5040	Financial Technology Research	3
PhD QE courses (18 credits)	FTEC 5030	Statistical Methods for Financial Technology	3
	FTEC 5031	Advanced Probability Theory	3
	FTEC 5032	Optimization Theory	3
	FTEC 5100	Research in Corporate Finance	3
	FTEC 5101	Microeconomic Theory	3
	FTEC 5110	Research in Asset Pricing	3
GTA training (0 credit)	PDEV 6800	Introduction to Teaching and Learning in Higher Education	0
Professional Development Course (2 credits)	PDEV 6770	Professional Development for Research Postgraduate Students	1
	SOCH 6780	Professional Development in Innovation, Technology, and Social Responsibility	1
Thesis Research Course (0 credit)	FTEC 6990	MPhil Thesis Research	0
	FTEC 7990	Doctoral Thesis Research	0

PHD PROGRAM IN FINANCIAL TECHNOLOGY THRUST CURRICULUM DESIGN

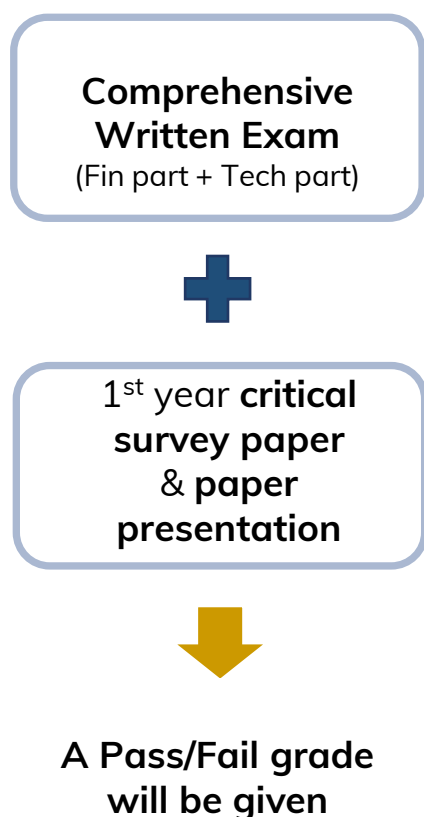
Course Type	Course Code	Course Title	Credits
PhD Electives	FTEC 5050	Machine Learning and Artificial Intelligence	3
	FTEC 6000	FinTech Attachment	2-4
	FTEC 6101	FinTech Program Seminar	1
	FTEC 6910A	Quantitative Investing	1
	FTEC 6910B	Financial Risk Management	3
	FTEC 6910C	Introduction to Blockchain Technology	3
	FTEC 6910D	Stochastic Calculus	3
	AIAA 5024	Advanced Deep Learning	3
	AIAA 5025	Deep Reinforcement Learning	3
	DSAA 5009	Deep Learning in Data Science	3
	DSAA 5013	Advanced Machine Learning	3
	DSAA 5022	Data Analysis and Privacy Protection in Blockchain	3
	IOTA 5501	Convex and Nonconvex Optimization I	3
	IPEN 5130	Economics of Technology Innovation and Entrepreneurship	3
	IPEN 5200	Uncertainty, Information and Decision Making	3
	IPEN 5250	Text Analysis and Machine Learning	3
	IPEN 5300	Experimental Economics and Organizational Behavior	3
	IPEN 5900	Policy and Technology for Carbon Neutrality	3
	UGOD 5020	Quantitative Social Science	3

Please refer to our program catalog for more details:
<https://prog-crs.hkust.edu.hk/pgprog/2024-25/mphil-phd-fintech>

HIGHLIGHTS OF FINTECH PQE GUIDELINE

PhD Qualifying Examination (PQE)

The objective is to assess whether students are qualified to proceed to pursue PhD degrees.



Written comprehensive examination

- Students are required to take the written comprehensive examination in two sessions. a) The first session focuses on the Tech part. b) The second session focuses on the Fin part.
- The PG committee will make a Pass/Fail decision based on the graded examination.

Critical survey paper

- Students should discuss and ask for advice from their supervisor(s) on the critical survey paper topic. The paper is due by October 1st following the first-year summer. The paper will be presented to the faculty in a 45-minute presentation followed by a 15-minute Q&A session in October following the first-year summer.
- The paper should be at least 20 pages long (including references), double-spaced with 1" margin on all sides, and written in academic English. It should be spell-checked and proof-read. The student should provide a cover page with title and an abstract with no more than 100 words. The paper should cite sources appropriately and be checked for plagiarism.
- After the presentation, the PG committee will evaluate both the written critical survey paper and the oral presentation, which are of equal importance. A Pass/Fail grade will be given.

Recent two QE written exams – 2023 June and 2024 June:

(1) The Tech part will be mainly based on the materials covered in the following three courses:

- FTEC 5030 Statistical Methods for Financial Technology
- FTEC 5031 Advanced Probability Theory
- FTEC 5032 Optimization Theory

(2) The Fin part will be mainly based on the materials covered in the following three courses:

- FTEC 5100 Research in Corporate Finance
- FTEC 5101 Microeconomic Theory
- FTEC 5110 Research in Asset Pricing

Both Tech part and Fin part will be given a grade of P/MP/F.

'P'=Pass, 'MP'=Marginal Pass, 'F'=Fail

To pass, the student should obtain one P plus one MP or above in sub-category grades

RESEARCH SEMINARS

Thrust Seminars

Academic Year 2023/24:

Friday 9:00am-10:30am***

Improving academic communications and enhancing PG students' access to the cutting-edge FinTech research

  **Fintech Thrust Seminar**

Punish Underperformance with Suspension – Optimal Dynamic Contracts in the Presence of Switching Cost



Speaker – Prof. Feng TIAN
Hong Kong University

Date: April 28th (Fri.), 2023
Time: 9:00 – 10:30 am
Venue: W1, 1F, Room 102

  **Fintech Thrust Seminar**

Evolution of Polarization in Perceived Risk



Speaker – Prof. Utpal BHATTACHARYA
Hong Kong University of Science and Technology

Date: June 2nd (Fri.), 2023
Time: 2:00 – 3:30 pm
Venue: W1, 1F, Room 102

Public Seminars

Previous public seminars:

  **Fintech Thrust – Public Seminar**



Technology-Driven Intermediation

Speaker - Prof Zhiguo HE
Fuji Bank and Heller Professor of Finance
University of Chicago

Date: March 22 (Wed), 2023
Time: 4:30 – 6:00 pm
Venue: W1 – Room 101
Zoom ID: 926 2186 1328
Passcode: Fintech

 **Fintech Thrust – Public Seminar**



Deep Learning for MBS Prepayments

Speaker - Prof Kay Giesecke
Professor of Management Science & Engineering
Stanford University

Date: September 28 (Wed), 2022
Time: 10:30 am – 11:30 am
Zoom ID: 926 2186 1328
Passcode: Fintech

***The timeslot is subject to change upon the availability of the speaker(s)

OUR FACULTY

Regular Faculty at Fintech Thrust

(All names are arranged in alphabetical orders)



Ning CAI

FTEC (Head)

Research Interests:
FinTech, Financial engineering,
Risk Management, Stochastic modeling



Lionel Ming-shuan NI

FTEC, DSA

Research Interests:
Big Data, High-performance Computing,
Internet Technologies, Mobile Computing,
Wireless Networking, Intelligent
Computing



Yue-Kuen KWOK

FTEC

Research Interests:
Financial Mathematics, Computational
Mathematics, Financial Engineering



Yingying LI

FTEC, ISOM, FINA

Research Interests:
Financial Big data, Statistical Learning,
Portfolio Analysis, Risk Management



Siguang LI

FTEC

Research Interests:
Financial Economics, Applied
Microeconomic Theory, Information
Economics, Mathematical Finance



Xiaoyu WANG

FTEC

Research Interests:
Machine Learning, Financial Engineering,
Stochastic Systems.



Xuechao WANG

FTEC

Research Interests:
Decentralized Consensus Protocol,
Blockchains



Yingjie XUE

FTEC

Research Interests:
Blockchain, Security and Privacy,
Decentralized Finance, Decentralized
Applications, Protocols for Various
Transactions/Trades on Blockchains



Zixuan YUAN

FTEC

Research Interests:
Data Science and Artificial Intelligence,
Financial Technology, Text Analytics,
Recommendation Systems



Guang ZHANG

FTEC, ISOM

Research Interests:
Financial Econometrics, Empirical Finance,
Machine Learning



Leifu ZHANG

FTEC

Research Interests:
FinTech, Information Economics, Machine Learning in Strategic and Adversarial Environments, Decentralized Finance



Yi ZHANG

FTEC

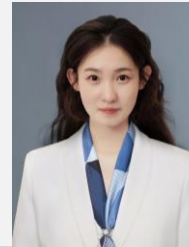
Research Interests:
Asset Pricing, Climate Finance, Text Analytics, Macroeconomics



Ying ZHANG

FTEC

Research Interests:
Numerical Algorithms of Nonlinear Stochastic Systems, Numerical Algorithms for Stochastic Differential Equations, Markov Chain Monte Carlo, Deep Learning



Ruiting ZUO

FTEC

Research Interests:
Finance-operations interface, Incentive design, Information disclosure, E-commerce and marketplace analytics, Risk management, Financial engineering

Professor of Practice and Industry Advisors

QI Lei 齐磊 博士 – *Associate Professor of Practice with Fintech*

Co-Founder and CEO 创业合伙人兼总经理

Wizard Capital Research Ltd. 蔚泽资本

CHENG Rocky 郑松岩博士

General Manager of Information Technology Department 资讯科技部总经理兼首席信息官

Bank of China (HK) 中国银行 (香港)

GUO Jian 郭健 博士

Assistant President and Chief Scientist of AI Finance & Machine Learning 助理院长兼人工智能金融与机器学习首席科学家

International Digital Economy Academy at GBA(IDEA) 粤港澳大湾区数字经济研究院

JIA Hongrui 贾红睿 博士

CEO 行政总裁

SPDB International 浦银国际

MA Henry 马智涛 先生

Executive Vice President and Chief Information Officer 副行长兼首席信息官

WeBank 微众银行

MA Jian 马坚 博士

Executive Director of Quantitative Research 量化研究总监

J.P. Morgan 摩根大通

XIAO Jing 肖京 博士

Chief Scientist 首席科学家，执委

Ping An Group 平安集团

XU Xiaohong 徐晓红 博士

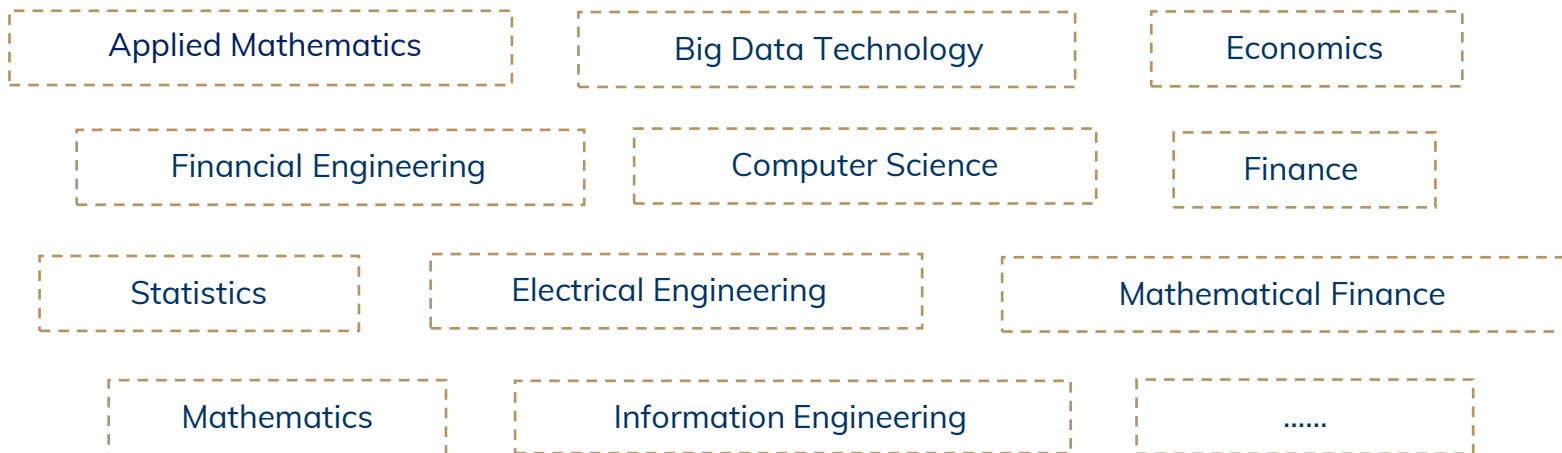
Partner and Chief Executive Officer 创业合伙人及总经理 兼任国家外汇管理局中央外汇业务中心顾问

Zhuhai Defen Financial Technology Co. 珠海得分金融科技有限公司

OUR STUDENTS

Educational/Academic background of current Fintech Students

Academic Backgrounds



Graduate Universities/Colleges

Undergraduate Studies:



Postgraduate Studies:

About **65%** of current Fintech students hold a Master Degree before they enter the program



HKUST(GZ) SOCIETY HUB
FINANCIAL
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*** The data and information in this brochure were updated as of July 2023.

@ Email: ftect@hkust-gz.edu.cn

🌐 Website: <https://www.hkust-gz.edu.cn/academics/hubs-and-thrust-areas/society-hub/financial-technology/>

📍 Address: The Hong Kong University of Science and Technology (Guangzhou), No.1 Duxue Road, Dongchong Town, Nansha District, Guangzhou