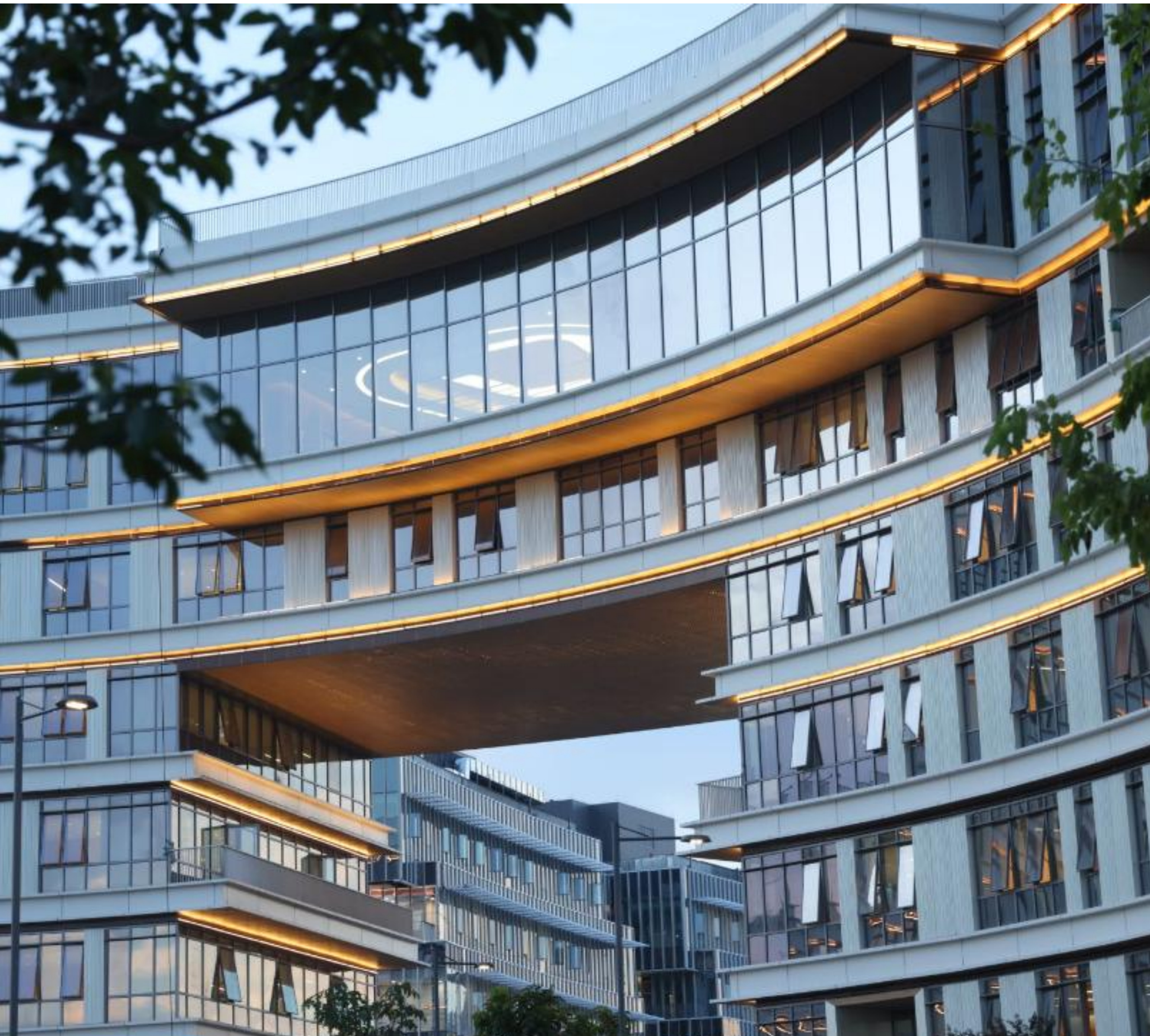
香港科技大学(广州)
THE HONG KONG
UNIVERSITY OF SCIENCE AND
TECHNOLOGY (GUANGZHOU)

金融科技学域
FINANCIAL TECHNOLOGY THRUST
社会枢纽
SOCIETY HUB

HKUST(GZ) SOCIETY HUB
FINANCIAL TECHNOLOGY THRUST

PH. D. PROGRAM



ABOUT FINTECH THRUST

Overview

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.

Mission of the FinTech Thrust

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.

Head's Message

Prof. Ning CAI

Thrust Head

Financial Technology Thrust,

HKUST(GZ)

FinTech, short for financial technology, is a burgeoning interdisciplinary field where novel technologies and financial innovations are employed to improve traditional financial services. Its rapid development has changed and will continue to change the global financial system as well as our lives profoundly, and the whole world has been witnessing growing needs for people with FinTech-related expertise. Located in Nansha, the geometric center of the Greater Bay Area, HKUST(GZ) has a unique advantage to develop the FinTech field because both finance and technology are strategically important in the Greater Bay Area. By drawing on the interdisciplinary expertise of our strong faculty, the FinTech Thrust of HKUST(GZ) aims to conduct original and influential research in various areas of FinTech and nurture outstanding researchers, practitioners, and policy makers in the FinTech field, thereby contributing to the economic development of the Greater Bay Area and playing an important role in shaping the future of the FinTech field.

PHD IN FINTECH

Doctor of Philosophy (PhD) Program in Financial Technology provides 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.

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

Learning Outcomes

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

PhD

- **01** Identify and synthesize current research in FinTech;
- **02** Compare and contrast state-of-the-art knowledge in FinTech and relevant reference disciplines (e.g., accounting, finance, computer science, mathematics), and apply such knowledge in driving FinTech research, practice, and innovation;
- **03** Analyze, design, and execute FinTech research by utilizing proper research methodologies;
- **04** Communicate the developed FinTech knowledge and research with the academic and practitioner community;
- **05** Create original, substantive, and impactful knowledge to advance the state of FinTech research and practice.

PHD IN FINTECH

Normative PhD duration: 4 years

- 1st Year coursework
- PhD Qualifying Exam (PQE)
- PhD candidacy
- 2nd to 4th Year Other required coursework
- 4th Year Thesis completion and oral defense
- PhD degree conferred

GENERAL INFORMATION

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://soch.hkust-gz.edu.cn/academics/ftec/
Enquiry	ftect@hkust-gz.edu.cn

HIGHLIGHTS OF FINTECH
PQE GUIDELINE

PhD Qualifying Examination (PQE)

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

Comprehensive Written Exam
(Fin part + Tech part)

+

1st year **critical survey paper** & **paper presentation**

A Pass/Fail grade will be given

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 7th 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.

(1) The Tech part mainly focuses 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 mainly focuses 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

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 5060	Stochastic Processes	3
	FTEC 5061	Stochastic Calculus for Financial Technology	3
	FTEC 5120	Text Mining in Finance and Economics	3
	FTEC 5210	Quantitative Models for Financial Derivatives	3
	FTEC 5220	Monte Carlo Simulation in Finance	3
	FTEC 5230	Financial Risk Management	3
	FTEC 5310	Blockchain Technology	3
	FTEC 5320	Decentralized Finance	3
	FTEC 6000	FinTech Attachment	2-4
	FTEC 6101	FinTech Program Seminar	0
	FTEC 6910E	Game Theory	3
	FTEC 6910F	Machine Learning for Finance	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

OUR FACULTY

Regular Faculty at FinTech Thrust

(All names are arranged in alphabetical orders)

Ning CAI
Head / Professor
FTEC
ningcai@hkust-gz.edu.cn
PhD in Operations Research
Columbia University, 2008
Research Interests:
FinTech, Financial Engineering, Risk Management, Green Finance, Stochastic Modeling

Lionel Ming-Shuan NI
President / Chair Professor
FTEC | DSA
ni@hkust-gz.edu.cn
PhD in Electrical Engineering
Purdue University, 1980
Research Interests:
Big Data, High-performance Computing, Internet Technologies, Mobile Computing, Wireless Networking, Intelligent Computing

Yue Kuen KWOK
Professor
FTEC
maykwok@hkust-gz.edu.cn
PhD in Applied Mathematics
Brown University, 1985
Research Interests:
Financial Mathematics, Computational Mathematics, Financial Engineering

Yingying LI
Chair Professor
FTEC | ISOM | FINA
yyli@ust.hk
PhD in Statistics
The University of Chicago, 2008
Research Interests:
Financial Big data, Statistical Learning, Portfolio Analysis, Risk Management

Ziteng CHENG
Assistant Professor
FTEC
zitengcheng@hkust-gz.edu.cn
PhD in Applied Mathematics
Illinois Institute of Technology, 2021
Research Interests:
Risk-Averse Decision Making, Reinforcement Learning, Inverse Reinforcement Learning, Mean Field Games, Mathematical Finance

Bingyan HAN
Assistant Professor
FTEC
bingyanhan@hkust-gz.edu.cn
PhD in Statistics
Chinese University of Hong Kong, 2020
Research Interests:
FinTech, Optimal Transport, Mathematical Finance

Siguang LI
Assistant Professor
FTEC
siguangli@hkust-gz.edu.cn
PhD in Economics
Cornell University, 2022
Research Interests:
FinTech, Digital Economies, Social Media, Industrial Organization, Applied Theory

Xiaoyu WANG
Assistant Professor
FTEC
xiaoyuwang@hkust-gz.edu.cn
PhD in Mathematics
Florida State University, 2021
Research Interests:
Theoretical Machine Learning, Financial Engineering, Stochastic Systems

Xuechao WANG
Assistant Professor
FTEC | IOT
xuechaowang@hkust-gz.edu.cn
PhD in Electrical & Computer Engineering
University of Illinois at Urbana-Champaign, 2023
Research Interests:
Blockchain, Decentralized Finance

Zixuan YUAN
Assistant Professor
FTEC | AI
zixuanyuan@hkust-gz.edu.cn
PhD in Information Technology
Rutgers University, 2023
Research Interests:
Data Science and Artificial Intelligence, Financial Technology, Text Analytics, Recommendation Systems

Chao ZHANG
Assistant Professor
FTEC
chaoz@hkust-gz.edu.cn
PhD in Statistics
University of Oxford, 2022
Research Interests:
Machine Learning in Finance

Guang ZHANG
Assistant Professor
FTEC
guangzhang@hkust-gz.edu.cn
PhD in Economics
Boston University, 2021
Research Interests:
FinTech, Financial Econometrics, Machine Learning, Empirical Finance

Leifu ZHANG
Assistant Professor
FTEC
leifuzhang@hkust-gz.edu.cn
PhD in Finance
Washington University in St. Louis, 2021
Research Interests:
FinTech, Information Economics in Financial Markets, Adversarial/Strategic ML/AI & Its Applications, Decentralized Finance (DeFi)

Yi ZHANG
Assistant Professor
FTEC
ethanyizhang@hkust-gz.edu.cn
PhD in Finance
Imperial College London, 2023
Research Interests:
Theoretical and Empirical Climate Asset Pricing, Climate Finance, Macro Finance, ESG, Text Mining, China Economy, Applied Machine Learning

Ying ZHANG

Assistant Professor
FTEC
yingzhang@hkust-gz.edu.cn
PhD in Mathematics
University of Edinburgh, 2020
Research Interests:
Numerical Algorithms Design, Machine Learning and Finance, Stochastic Optimization

Zimu ZHU

Assistant Professor
FTEC
zimuzhu@hkust-gz.edu.cn
PhD in Applied Mathematics
University of Southern California, 2021
Research Interests:
Stochastic Control and Games, Mathematical Finance, Principal-Agent Problem, Machine Learning

Ruiting ZUO

Assistant Professor
FTEC
ruitingzuo@hkust-gz.edu.cn
National University of Singapore, 2022
Research Interests:
Finance-Operations Interface, E-Commerce and Marketplace Analytics, Operations-Marketing Interface, Game Theory, Optimal Control, Data-driven Decision Making

Professor of Practice and Industry Advisors

WU Peter 吴金锭 博士 – *Professor of Practice*
Executive Director 执行董事
Head of Trading Risk Control, Asia Pacific 亚太区交易风险控制主管
Morgan Stanley 摩根士丹利

QI Lei 齐磊 博士 – *Associate Professor of Practice*
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

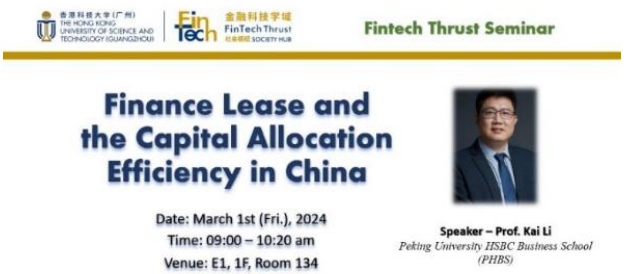
XU Xiaohong 徐晓红 博士
Partner and Chief Executive Officer 创业合伙人及总经理 兼任国家外汇管理局中央外汇业务中心顾问
Zhuhai Defen Financial Technology Co. 珠海得分金融科技有限公司

RESEARCH SEMINAR

Thrust Seminars

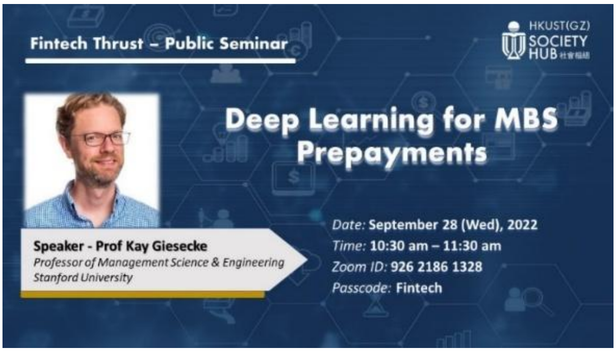
Thrust Seminars are offered each term **every week**

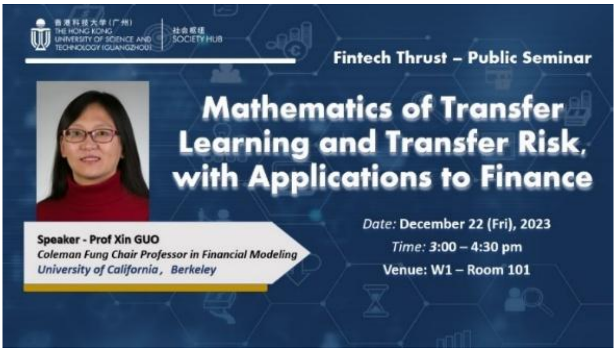
Improving academic communications and enhancing PG students' access to cutting-edge FinTech research



Public Seminars

Previous public seminars:





OUR STUDENTS

Educational/Academic background of current FinTech Students

Academic Backgrounds

Applied Mathematics | Big Data Technology | Economics

Financial Engineering | Computer Science | Statistics

Finance | Electrical Engineering | National Information Management

Mathematics | Information Engineering | Computer Engineering

Mathematical Finance | ......

Graduate Universities/Colleges

Undergraduate Studies:

Postgraduate Studies:

ADMISSION REQUIREMENTS

General Admission Requirements

Applicants seeking admission to a doctoral degree program should have:

Obtained a bachelor’s degree with a proven record of outstanding performance from a recognized institution; or presented evidence of satisfactory work at the postgraduate level on a full-time basis for at least one year, or on a part-time basis for at least two years.

English Language Admission Requirements

Applicants have to fulfill English Language requirements with one of the following proficiency attainments:

- TOEFL-iBT: 80*
- TOEFL-pBT: 550
- TOEFL-Revised paper-delivered test: 60 (total scores for Reading, Listening and Writing sections)
- IELTS (Academic Module): Overall score: 6.5 and All sub-score: 5.5*
- Refers to scores in one single attempt only. Test at home option is not accepted.

Applicants are not required to present TOEFL or IELTS score if

- Their first language is English, or
- They obtained the bachelor's degree (or equivalent) from an institution where the medium of instruction was English, or

You are not required to take the English Proficiency Test if you obtained a master’s degree (or above) from an institution where the medium of instruction was English.

Research Postgraduate Programs (PhD)

Application Fees
CNY 150

Postgraduate Studentship (PGS)
CNY 15,000

per month, up to 4 years for full-time PhD students

Tuition

Research Postgraduate Programs (with PGS) Full-time

CNY 40,000

per academic year

Research Postgraduate Programs (self-financing) Full-time/Part-time

CNY 150,000

per academic year

Visiting Postgraduate Students

CNY 3,300 per credit

Visiting Research Students

CNY 1,500 per credit

Useful QR code

For Program Details

Contact Proposed Supervisors

Submit Online Application

HKUST(GZ) SOCIETY HUB

FINANCIAL TECHNOLOGY THRUST

PH. D. PROGRAM

@ 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