

# 2021 CUHK CONFERENCE ON FINANCIAL TECHNOLOGY

TOWARDS A DIGITALIZED SOCIETY -  
DIGITAL ASSETS & PLATFORMS

2 Nov 2021 [Tue]  
12:30-18:30

N101, Hong Kong Convention and Exhibition Centre  
Hybrid Mode [Physical and Webinar]



<https://conference.cefar.cuhk.edu.hk/>

# Conference Theme



## Towards A Digitalized Society - Digital Assets & Platforms

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This conference is in the 5th Fintech Education Series, which aims to promote financial technology education in town. This event is part of the core agenda of the HK FinTech Week 2021, Asia's most anticipated international financial technology event, looking to bring together more than 1.2 million viewers and 17,000+ attendees, who are executives, entrepreneurs, investors, regulators and academics from 100+ economies. We would like to take advantage of this opportunity to bring together the academia and industry participants, providing a platform to carry out fruitful and productive discussions, encourage the exchange of ideas and promote future collaboration opportunities. We also look to leverage on the 5 focus areas of the HKMA Fintech 2025 strategy to drive the fintech development of Hong Kong.

<b>Time</b>	<b>Program</b>	<b>Speakers/Person In Charge</b>
12:30-13:00	Welcome Speeches & Photo Session	Host
13:00-13:25	Featured Speaker - Digitization – Cash Management Integration with the Business Ecosystem	Mr. John WONG and Miss Maggie FONG Hang Seng Bank Ltd.
13:25-13:50	Featured Speaker - The Next Stop of MPF Journey for HK People – eMPF	Mr. Eric LUI MPFA
13:50-14:15	Featured Speaker - Facilitating GBA Supply Chains Finance: Connecting Logistics and Finance Platforms	Prof. CHEUNG Waiman CUHK Business School
14:15-14:40	Featured Speaker - Non-Fungible Token (NFT)	Mr. Hanjin TAN Artist
14:40-15:00	Networking Break	
15:00-15:40	Panel Discussion - The Developments and Outlook of Digital Assets	Moderator & Panel Discussants
15:40-16:05	Featured Speaker - Designing Stable Coins	Prof. YANG Chen Dept of SEEM, CUHK
16:05-16:30	Featured Speaker - Building a CBDC Platform. Deep Dive in Retail CBDC's Architecture	Mr. Charles D'HAUSSY Consensus
16:30-16:40	Networking Break	
16:40-17:25	Panel Discussion - The Importance of Digital Platforms in Driving the New Economy	Moderator & Panel Discussants
17:25-17:50	Featured Speaker - Finding Green Ocean	Mr. Joe LAM Hang Seng Bank Ltd.
17:50-18:15	Featured Speaker - Category of Cryptocurrencies	Prof. XIAO Yizhou CUHK Business School
18:15-18:20	Closing Remarks	Host

# Guests of Honour

/ In order of appearance

## **Professor Rocky S. TUAN** Vice Chancellor/President, CUHK



Professor Rocky S. Tuan began his term as the eighth Vice-Chancellor and President of The Chinese University of Hong Kong (CUHK) on 1 January 2018. Born and raised in Hong Kong, he pursued further studies in the United States and received his PhD in Life Sciences in 1977 from the Rockefeller University in New York.

Professor Tuan is an internationally renowned biomedical scientist specializing in musculoskeletal biology and tissue regeneration, whose work covers both basic science and engineering, as well as translational and clinical applications. Prior to joining CUHK in 2016 as a distinguished visiting professor and the founding director of the Institute for Tissue Engineering and Regenerative Medicine, he was distinguished professor of orthopaedic surgery and director of the Center for Cellular and Molecular Engineering in the School of Medicine at the University of Pittsburgh.

In 2017, 2018 and 2019, Professor Tuan was elected to the fellowships of the National Academy of Inventors (NAI), the Chinese Association of Inventions (CAI), and the American Association of Anatomists (AAA), respectively, for his accomplishments in innovation and translational research that bring significant impact on society.

**Ms. Rebecca PUN, JP**  
**Commissioner for Innovation and Technology**  
**The Government of Hong Kong SAR**



Ms Rebecca Pun joined the Administrative Service of the Hong Kong Government in July 1987. She has served in various policy bureaux and departments, including the Home Affairs Department, the Judiciary as well as the former Education and Manpower Bureau. Before joining the Innovation and Technology Commission, she was Deputy Secretary for Transport and Housing (Transport), responsible for the planning and implementation of domestic and cross-border land transport infrastructure projects in Hong Kong. Ms Pun assumed the post of Commissioner for Innovation and Technology in July 2019.

Ms Pun obtained her Bachelor's degree in Civil Engineering, Bachelor's degree in Laws and Executive Master's degree in Business Administration from the University of Birmingham, UK, the University of London, UK and the Chinese University of Hong Kong respectively. She also completed postgraduate studies in Public Administration at Tsinghua University, PRC, Chinese Academy of Governance and Harvard University, USA.

**Mr. Joseph CHAN, JP**  
**Under Secretary for Financial Services and  
the Treasury,**  
**The Government of Hong Kong SAR**



Mr Chan was appointed the Under Secretary for Financial Services and the Treasury on 16 August 2017.

Mr Chan has many years of senior executive experience in the banking industry. He was a Managing Director in the Global Markets Division of Credit Agricole Corporate & Investment Bank, and was a Managing Director in Financial Markets of Standard Chartered Bank.

Prior to joining the Government, Mr Chan held multiple roles in a number of public and professional bodies, including Vice President of the Hong Kong Society of Financial Analysts, Director of Hong Kong Securities & Investment Institute, Advisor of the Chinese Gold & Silver Exchange Society, as well as a General Committee member of the Hong Kong General Chamber of Commerce. Mr Chan was also a member of the Central & Western District Council.

Mr Chan holds a Bachelor of Arts in Economics (Hon) and Psychology from the University of Michigan, USA. He is also a Chartered Financial Analyst.

## **Professor Martin D.F. WONG**

### **Dean, Faculty of Engineering, CUHK**



Martin D. F. Wong is the Dean of the Faculty of Engineering and Choh-Ming Li Professor of Computer Science and Engineering at the Chinese University of Hong Kong (CUHK) since January 2019. Before he joined CUHK, he was with the University of Illinois at Urbana-Champaign (UIUC) from 2002 to 2018. He was the Executive Associate Dean of the College of Engineering (2012-2018) where he was the 2nd highest rank administrator in the College, and the Edward C. Jordan Professor of Electrical and Computer Engineering. Before UIUC, he was with the University of Texas at Austin from 1987 to 2002 where he was a Bruton Centennial Professor of Computer Science. Prof. Wong received his Ph.D. in Computer Science from UIUC in 1987. He is internationally known for his research on electronic design automation (EDA) for very-large-scale integrated circuits and systems. He has published about 500 technical papers. He has supervised and graduated more than 50 Ph.D. students, and many of them now hold leadership positions in industry and academia. He is a Fellow of ACM and IEEE.

## **Professor Lin ZHOU**

### **Dean, CUHK Business School**



Prof. Lin Zhou is the Dean of The Chinese University of Hong Kong (CUHK) Business School and Choh-Ming Li Professor of Economics. He has a distinguished academic career of more than 30 years. He was an assistant and associate professor at Yale from 1989 to 1996, a tenured associate professor at Duke from 1996 to 2001, a WP Carey professor at Arizona State University (ASU) from 2001 to 2008, and a university chair professor at Shanghai Jiao Tong University (SJTU) from 2008 to 2019.

Prof. Zhou's research interests cover some fundamental areas of micro-economic theory, including game theory, mechanism design, social choice and welfare. Much of his original work was published in leading economics journals, including *Econometrica*, *Review of Economic Studies*, *Journal of Economic Theory*, *Games and Economic Behavior*, etc. In 1993, he was awarded the prestigious Sloan Research Fellowship in economics. In 2009 he became the first Econometric Society Fellow elected from the Greater China region.

Prof. Zhou grew up in Shanghai and obtained a bachelor's degree in mathematics from Fudan in 1982. He went to Princeton in 1985 to study economics after placing first on a national examination jointly administered by the Chinese MOE and American Economic Association. He stayed in US after receiving his PhD degree from Princeton until 2008 when he returned to Shanghai and joined SJTU, the alma mater of his parents and his maternal grandfather.



**Mrs. Eunice CHAN**  
Chief Operating Officer,  
Hang Seng Bank Limited



Eunice started her career with HSBC in Hong Kong in 1988. Since then, she has undertaken various roles in Hong Kong across different businesses and functions, including Retail Banking, Project Management, Operations and was the Asia Pacific Head of Operations for HSBC. Eunice joined Hang Seng Bank as Chief Operating Officer in March 2016. She is responsible for Operations, Services and Technology within the Bank to provide a comprehensive relationship management service to Bank's business leaders, and ensure strategy and plans and the best quality services, processes and infrastructure are fully support business strategy.

# Featured Speakers

## DIGITIZATION - CASH MANAGEMENT INTEGRATION WITH THE BUSINESS ECOSYSTEM

### Mr. John WONG

Head of Global Liquidity & Cash Management,  
Hang Seng Bank Limited



John is responsible for Hang Seng wholesale banking cash management business and strategy with coverage across sales, product management, digital banking channel development and client implementation. He has thorough knowledge on the commercial banking and in particular SME sector.

John is a solid commercial banking executive with proven track record in delivering exceptional strong and sustainable business result. He possesses over 30 years of banking experience and specialized on transaction banking. Prior to joining Hang Seng Bank in 2015, John spent 25 years with Standard Chartered Hong Kong and China. He has successful career span in business transformation and managing changes effectively.

John has strong leadership and has Asia Pacific working experience in Hong Kong, China and a few APR countries. He got multi-cultural appreciation in working with people of different nationalities and background. He was named Transaction Banker of the Year by The Asian Banker and SME Banker of the Year by The Asset in 2018.

### Miss Maggie FONG

Head of Global Liquidity & Cash Management Digital,  
Hang Seng Bank Limited



Maggie is dedicated in bringing the best digital banking platform to our Hang Seng corporate banking customers. She has more than 10 years' experience in managing strategic development and digital servicing initiatives for Corporate and Commercial customers specializing in GLCM services across a range of platforms – Hang Seng HSBCnet – desktop and mobile, Host-to-Host solution and API solution. She is responsible for channel development, commercialization, channel management within GLCM Digital to provide a comprehensive and sophisticated cash management solutions to Hang Seng Corporate Banking customers.

# THE NEXT STOP OF MPF JOURNEY FOR HK PEOPLE – EMPF

## **Mr. Eric LUI**

**Project Director of the eMPF Platform  
Provisional Office,  
Mandatory Provident Fund Schemes Authority**



Eric Lui is the Project Director of Mandatory Provident Fund Schemes Authority (MPFA) responsible for the development and implementation of eMPF Platform. Eric is an experienced executive with over 30 years of professional experiences covering IT and management across a wide spectrum covering railway, sea transport, property, insurance, banking and government services.

Before joining MPFA in 2021, Eric had worked as a freelance consultant and provided services to government department/agency and large corporations including Securities and Futures Commission of Hong Kong, Land Transport Authority of Singapore, Kuala Lumpur Metro Line 2, a large textile and fashion enterprise with global presence, Hong Kong Polytechnic University and also MPFA for early preparation of the formation of eMPF Provisional Office and the tendering of the eMPF Project. Prior to consulting services, Eric had served in the two railway companies of Hong Kong for over 20 years and his last position was Chief IT Strategy and Enterprise Architecture Manager when he decided to start a new chapter and leave the long serviced MTR Corporation Limited in 2016.

Eric is experienced in managing large projects, business-IT alignment and digital transformation for business operating model and user experience.

Eric has post-graduate degrees of Juris Doctor, LLM, MBA, Master of Information System and Master of Professional Accounting. He is also professional member of British Computer Society, Hong Kong Computer Society, ISACA, CPA(Australia) and Chartered Institute of Transport and Logistics.

On community services, Eric had served as vice-chairman of Cloud Computing and Enterprise Architecture Special Interest Group of Hong Kong Computer Society for 4 years and also served as a member in HK-Guangdong ICT Expert Committee in 2017. At present, Eric is the Honorary Secretary of Connected Cities Alliance Ltd which is a non-profit organisation promoting IoT assessment methodology based on IEEE2668 standard.

# FACILITATING GBA SUPPLY CHAINS FINANCE: CONNECTING LOGISTICS AND FINANCE PLATFORMS

**Prof. CHEUNG Waiman**

Director,  
Asian Institute Of Supply Chains And Logistics,  
CUHK Business School



Prof. Waiman Cheung is a Professor of the Department of Decision Sciences and Managerial Economics and Associate Dean (Graduate Studies) in The Chinese University of Hong Kong (CUHK) Business School. Currently, he is also the Executive Director of The Asia-Pacific Institute of Business, Director of Asian Institute of Supply Chains & Logistics, Director of Centre of Cyber Logistics, Director of Studies in Graduate Studies in Business and Head, Graduate Division of Business Administration. Prof. Cheung holds an MBA and a PhD in Decision Sciences and Engineering Systems from Rensselaer Polytechnic Institute. His research interests are mainly in aviation, logistics, supply chain management and information technology.

Prior to joining The Chinese University of Hong Kong, Prof. Cheung had worked as a technical staff for Oracle Systems in the US. He is very keen on working closely with local industries for knowledge transfer and has conducted studies and consulting works for DHL, Airport Authority Hong Kong, Dragonair, Accenture, Sun Hung Kai Properties Ltd., SML Group Ltd., and the Innovation and Technology Commission of Hong Kong. His research interests are mainly in applying IT on logistics and supply chain management.

## NON-FUNGIBLE TOKEN (NFT)

### **Mr. Hanjin TAN**

**Award Winning Singer Songwriter Album Producer,  
Winner Of The Hong Kong Film Awards,  
First In The World To Drop Chinese Music NFT**



Hanjin has starred in hit TV sitcoms, and played a supporting role in “Bruce Lee, my brother” which earned him a Hong Kong Film Award in 2011. Above all, he is an award-winning singer song-writer album producer. He is also the first in the world to drop a Chinese music NFT.

## DESIGNING STABLE COINS

### **Prof. YANG Chen**

**Assistant Professor,  
Department of Systems Engineering and  
Engineering Management, CUHK**



Prof. Chen Yang is currently an Assistant Professor in the Department of Systems Engineering and Engineering Management at the Faculty of Engineering of CUHK. He received a B.Sc. degree in Mathematics and Applied Mathematics from Zhejiang University in 2008, and his Ph.D. degree in Financial Mathematics from National University of Singapore in 2017. Prior to joining CUHK, he was a postdoctoral researcher at ETH Zürich from 2017 to 2019.

His current research interests include optimal investment, financial technology, and market micro-structure. His recent research covers topics such as the design of stable coins, the management of leveraged funds in presence of price impact, and impact of private information and competition on the price discovery in high-frequency trading. One of his papers was published in the leading finance journal *The Review of Financial Studies*.

# BUILDING A CBDC PLATFORM. DEEP DIVE IN RETAIL CBDC'S ARCHITECTURE

**Mr. Charles D'HAUSSY**  
APAC Managing Director,  
ConsenSys



Charles d'Haussy is Asia Managing Director at ConsenSys, a leading blockchain engineering company. Among his responsibilities, he leads ConsenSys' projects on central-bank digital currencies with Hong Kong Monetary Authority and Bank of Thailand.

Prior to this, Charles served as head of fintech with the Hong Kong government (InvestHK). In that capacity he helped found and scale Hong Kong Fintech Week, and supported the growth of over 450 fintech companies.

He has 15 years of prior experience in Hong Kong's private sector and is licensed to invest and deal in securities.

In 2018, Charles was elected as a Top-50 fintech influencer in Asia. In 2021 he published Block Kong, a book about Blockchain leaders shaping the Hong Kong blockchain ecosystem.

He studied in France at Rennes International Business School and in Guangzhou, China at Sun Yat Sen University. He is a certified Bitcoin professional and studied blockchain business strategy at Be9 London.

## FINDING GREEN OCEAN

**Mr. Joe LAM**  
Chief Executive Officer,  
Hang Seng Insurance Company Limited



Joe is the CEO of Hang Seng Insurance Company Limited where he leads life insurance, general insurance, medical insurance and MPF businesses. His previous roles include Global Head of Asset Liability Capital Management of HSBC Insurance and CRO of HSBC Insurance Singapore Pte Ltd.

Joe holds a PhD in Finance from Shanghai University of Finance and Economics, MSc Health Service Management from CUHK, MBA from HKUST, and BSc in Actuarial Science from HKU.

Leveraging the global experience, Joe is committed to combining the latest innovations in fin-tech and digital services to offer world-class insurance, wealth and health solutions to customers in HK and GBA.



## CATEGORY OF CRYPTOCURRENCIES

### **Prof. XIAO Yizhou**

**Assistant Professor,  
Department of Finance, CUHK Business School**



Professor Yizhou Xiao receives his PhD in Finance at Stanford Graduate School of Business. His research primarily focuses on information economics, Fintech, and entrepreneurial finance. He has published in top journals such as *Journal of Finance* and *Review of Financial Studies*. He also contributes chapters in the “Palgrave Handbook of FinTech and Blockchain”, and “Information for Efficient Decision Making: Big Data, Blockchain, and Relevance”.

# Panel Discussions

## TOPIC 1

### THE DEVELOPMENTS AND OUTLOOK OF DIGITAL ASSETS

In the past decades, when investors looked to monetize an asset, they would securitize it. Some studies claimed with more people trading it, higher information value could lead to fairer pricing. Entering the fintech age, digitalizing the assets has become a popular approach. This panel looks to discuss what assets can be digitalized, the advantages of digitalizing various assets and the room for future development of digitalization.

#### Moderator:



Mr. Raymond CHENG  
Advisory Committee Chair, CUHK Engineering FinTech Applied Research Academy

#### Panel Discussants:



Ms. Brit BLAKENEY  
Executive Director, Innovation & Ecosystems, DBS Bank (HK) Ltd



Mr. Thor CHAN  
CEO, AAX



Mr. Henry CHONG  
Chief Executive Officer, FUSANG



Mr. Nike KONG  
Chief Information Officer, Hang Seng Bank Ltd.

## TOPIC 2

# THE IMPORTANCE OF DIGITAL PLATFORMS IN DRIVING THE NEW ECONOMY

With more and more assets being digitalized, buyers and sellers need relevant platforms for the exchange of these assets. This panel looks to discuss the common platforms used, the future development of digital platforms and whether the assets should drive the design of trading platforms or the other way round.

### Moderator:



Mr. Alun JOHN  
Asia Regulation Correspondent, Reuters News

### Panel Discussants:



Mr. Joseph CHAN  
Chief Digitization Officer, Hong Kong Monetary Authority



Mr. Patrick KHONG  
Chief Data Officer, Hang Seng Bank Ltd.



Ms. Rebecca SHAO  
Head of Data and Research and Head of Asia Pacific, The Floor



Mr. Joe YAU  
CEO & CTO, Open Rice

# Future of Banking

Fintech is creating exciting possibilities for us all.

Hang Seng Bank strives to nurture the Fintech ecosystem in order to sustain our development and ensure our competitiveness in the ever-changing environment. We appreciate the importance of developing young talent as the creative engine for our constantly evolving and innovative environment.

If you are eager to drive Fintech projects and digital strategies and to craft your career as a future Fintech leader, join us now – the leading domestic bank which embraces innovation, creativity and technological advancements.

For more details, please visit our career website at

<https://www.hangseng.com/en-hk/about/careers/job-openings/>




# Staff Well-being




 Market leading annual leave entitlement


 Birthday leave


 Work from Home arrangements


 2-hour personal time off every month



## The CEFAR Academy

To meet the demand in FinTech applied research and talent development in Hong Kong, the Faculty of Engineering at CUHK has set up CUHK Engineering FinTech Applied Research Academy (CEFAR Academy), with an aim to achieve the following objectives:

**Chart** directions in, promote and accelerate applied research in FinTech applications to reinforce the position of Hong Kong as an International Financial Centre.

**Foster** a strong and growing FinTech ecosystem, comprising key stakeholders from Government, Industry, Academia and Research in contributing to FinTech applied research and talent development and deepen such engagement.

**Create** theme-based/domain-based project repositories through categorizing FinTech applied research problems/business opportunities, and the associated research findings.

**Develop** a steady pipeline of FinTech talents, equipped with strong applied research capabilities to meet industry demands.

## Synergistic Benefits



### Financial Services Institutions

– in adopting research findings & tapping into talent pipeline;

### Academia

– in fostering academia-industry connections;

### Government/Regulators

– in stimulating FinTech research activities to attract and grow talents;

### Research Agencies

– collaboration on industry-grounded research and establishing the repository of applied research problems/business opportunities.

## CEFAR Projects and CEFAR Awards

The scope of FinTech applied research encompasses various domains of financial technologies applied in addressing real-life problems/business opportunities provided by sponsoring organizations. Applied research projects will be undertaken by undergraduate and postgraduate students who have passed the selection/matching process and obtained approval to engage in an applied research project, normally spanning from 6 to 8 months duration, of the CEFAR Academy. The CEFAR Awards aim to honor students who have delivered outstanding performance in the project by demonstrating their ability and skills in analysing a real-life business problem and applying extensive knowledge and concepts to derive proper solutions and deliverables for the project. 3 projects are selected for the CEFAR Annual Awards in the 2020-21 academic year.

### Project Title:

Comparative Study of Digital Identity and Opportunities in Hong Kong using iAM Smart in Banking Application as an Example

Awardee: LAM Ka Kit



#### Sharing:

It was a great experience to complete the industrial project with the academic supervisor and industrial supervisor from HSBC. I have gained a lot of valuable experiences in different aspects. For instance, I have learned to manage the whole project including the meeting schedules and timeline management. Also, I have gained skills about how to write an academic research paper with a completed flow and methodology. Besides, it is an interesting project which I can understand

more about the difficulties in current banking industries. After discussions with supervisors and making research about the topic, it gives me a lot of insights into the current development of digital identity in Hong Kong and how it can be improved. Furthermore, I also have on hand experiences in making use of APIs to develop banking application which let me understand more about the current standard of information exchange and increase my programming skill. Overall, the project helped me better equipped with lot of essential skills to face the future challenges in Financial Technology areas. Lastly, I hope that the recommendations provided in the report are useful and I strongly recommend new students to take the industrial project courses.

### Project Title:

P2M Collection Model

Awardee: MA Chin Fung Victor



#### Sharing:

Within the project, I worked on every step from the beginning. These provide me insights and experience of initiating a project from 0 to 1. Also, working with experts from Hang Seng bank who gave me feedbacks and comments all the time allowed me to think out of the box and keep improving. The support from mentors are very valuable and it was my pleasure to work alongside them.



FinTecubator Scholarship 2020-21 [for Hang Seng internship]

Awardee: YANG Yurong Royce

#### Sharing:

The internship in HASE is very interesting and profound. In this internship, I applied the theories learned from books to the real issues in the bank and discussed with experienced mentors about the proper methods to be applied, which really inspired me.



The most important thing I learned from the internship is that communication and presentation is really very important, and what I learned during my internship not only does a favor to my job interview, but also has a far-reaching impact for my future career. During working, I need to communicate with colleagues from different departments and with different background. So I need to pay attention to my communication methods and try to express myself clearly. When presenting, I need to take audience background into consideration and present what my audience wants to listen instead of just focusing on what I want to say.

The third thing is that I shall proactively seek for opportunities instead of just waiting for opportunities to come. In this internship, I offered to participate in the startup project and I really learned a lot from it. Besides, when encountering something I know little about or something too hard for me to decide, I would also leverage my resources and actively seek help from colleagues and mentors. After the internship, I think I have changed a lot, from someone who isn't good at communication to someone who is willing to communicate and present, from someone who is passive to someone actively seeks for opportunity, and I have also developed a habit of caring about the newest development in FinTech, which I think is good for my future career too.

The working environment in HASE is very nice, too. Everyone is very friendly and is willing to help you. No matter what their position is, they will communicate with you in a friendly way. I really appreciate HASE would offer this internship and I really enjoyed it!

### Project Title:

VIRTUAL BANKING: VISIBLE OR INVISIBLE?  
Embedded banking services unintentionally in our daily life

Awardee: LOUIE, Wai Tak Frank

#### Sharing:

I would like to express my heartfelt thanks to my academic advisor, Professor Chan, and my industry advisor, Rita Chan, for their guidance and encouragement in finishing my industrial project. Throughout the project, Professor Chan kept inspiring me to think in different angles and suggested me the right approach to complete the work, while Rita shared with me her precious industry knowledge in virtual banking.



I am working in Regulatory Compliance in banking industry. This industry project can help me explore and learn a new outlook of financial industry, which strengthen my knowledge in financial inclusion and Open Banking technology. It can supplement my existing work experience in banking compliance and benefit me to develop my future career in Regtech and Suptech.



#### ENQUIRIES

CEFAR Academy  
Faculty of Engineering  
Email: [cefar@cuhk.edu.hk](mailto:cefar@cuhk.edu.hk)  
Website: [cefar.cuhk.edu.hk](http://cefar.cuhk.edu.hk)



香港中文大學  
The Chinese University of Hong Kong

# Master of Science / Postgraduate Diploma in Financial Technology

(Full-time / Part-time) 2022-23

# FIN TECH



Financial Technology (FinTech), an emerging industry that enhances convenience and efficiency in financial activities through adoption of data-oriented and smart technologies, is bringing revolution to the financial service sector. The development of innovations such as virtual bank and blockchain technology opens up a new era of financial digitization which drives up the demand for FinTech talents in Hong Kong. Backed by the Faculty of Engineering experts, this programme aims to nurture the next generation of FinTech professionals who are technologically adept and business savvy who can offer innovative solutions to finance-related industries and thus, to secure and strengthen our lead in financial services in Asia and the world.

## Program Features

- Career-Oriented Curriculum
- Internship (for Practicum Track)\*
- Industrial Projects (for Industrial Project Track)\*
- Wide Range of Electives
- Mentorship
- Entrepreneurship and Pitching

\*applicable to Master of Science Programme only

## Admission Requirements

In addition to the General Requirements and the English Language Requirements of the Graduate School, applicants are preferably to have:

- Good knowledge of mathematics (such as calculus, linear algebra and probability) and proficiency in at least one modern programming language (such as C, C++, Java or Python) as shown in academic transcript.

(Note: PgD Applicants are required to provide supporting documents (e.g. certificate(s), course/project information, etc) if relevant subject knowledge could not be evidenced by the academic transcript(s).)

- Obtained a Bachelor's degree in Engineering, Science, Mathematics or Finance/Business-related discipline from a recognized university or equivalent professional qualifications.
- Relevant job experience would be favourably considered for PgD application.

## MSc Application Deadlines

- 1st round : 4 October 2021
- 2nd round : 1 November 2021
- 3rd round : 6 December 2021
- 4th round : 3 January 2022
- 5th round : 1 March 2022

## PgD Application Deadlines

- 1st round : 6 December 2021
- 2nd round : 3 January 2022
- 3rd round : 1 March 2022
- 4th round : 11 April 2022

## Online Application

Graduate School Website at:  
<https://www.gs.cuhk.edu.hk/admissions/>

## Contact Us

Tel : (+852) 3943 8450  
Email : [mscfintech@cuhk.edu.hk](mailto:mscfintech@cuhk.edu.hk)  
Website : <http://fintech.erg.cuhk.edu.hk/>

Strategic Partners



Powered by 恒生銀行  
HANG SENG BANK



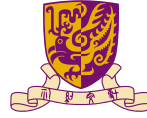
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DEPARTMENT OF  
SYSTEMS ENGINEERING AND  
ENGINEERING MANAGEMENT



香港中文大學  
The Chinese University of Hong Kong

# Bachelor of Engineering Programme in Financial Technology

## 金融科技學工程學士學位課程

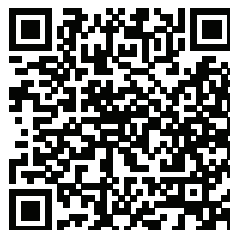


# Empower Your **Future Career** to Lead the Change

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Explore what the future holds for you now.

@CUHKBusinessSchool #LookForward



## MSc in Finance

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BUSINESS SCHOOL



## **MBA**

Get transformed for the digital era through an integrated curriculum covering FinTech, digital marketing, big data, AI and more.

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## **Executive MBA**

Join other senior executives in Asia's longest-standing programme to manage tomorrow's challenges in Hong Kong and beyond.

# Unsupervised Detection of Money Laundering Activities via Diffusion Model

Hongxu Jiang, Ziqi Liu, Hoi-To Wai, Man-Hong (Keith) Wong

Department of SEEM, CUHK, Hong Kong

## Introduction

Money laundering activities have grown with the popularization of digital payments and e-banking.



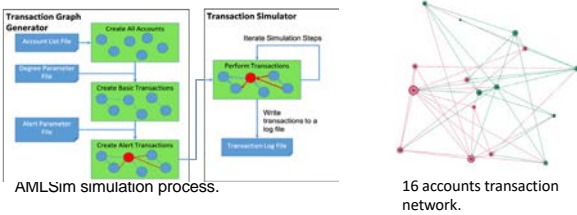
Some common pattern of money laundering transactions:



**Our Goal:** develop an unsupervised detection method for anti-money laundering.

## Related Work

AMLSim is a program to simulate transactions including both alert (money laundering) and normal ones.



## Diffusion Model for Transaction

$$X(t + 1) = X(t) + l_t B e(e_t)$$

### B Edge Matrix

Each column represents an edge

$e_0 = (3,2), e_1 = (0,3), e_2 = (2,3), e_3 = (1,3), e_4 = (3,1)$ , then

$$B = \begin{bmatrix} 0 & -1 & 0 & 0 & 0 \\ 0 & 0 & 0 & -1 & 1 \\ 1 & 0 & -1 & 0 & 0 \\ -1 & 1 & 1 & 1 & -1 \end{bmatrix}$$

### $l_t$ Transaction amount

$l_t$ : transaction amount at time  $t$   
 $l_{alert}$ : total amount for an alert group transaction

### $B e(e_t)$ Tx-in & Tx-out

Models the money transfer in the balance vector space

## Extension

Banks only know the accounts partially when calculating  $\Lambda_t$ . We test 3 cases with **imperfect** observations:

- Case A – Money launderer is **observed**.
- Case B – Money launderer is **not observed** but his/her direct neighbors are observed.
- Case C – Both money launderer and its neighbors are not observed.

50 accounts are observed out of the 100 accounts.



Light blue: unobserved, Red: Money launderer Green: observed

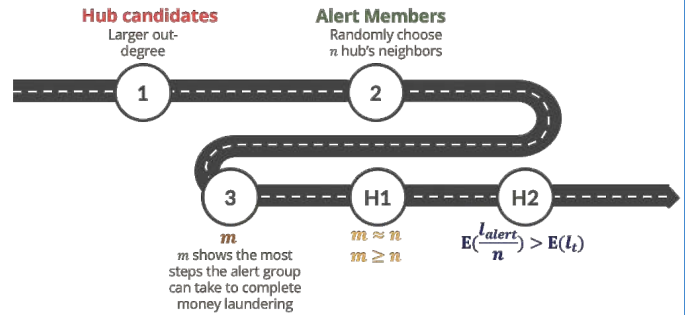
## Normal Transactions Vs. Alerts (Money Laundering) Transactions

$p_t = 0$  Normal

$e_t$  is randomly chosen from the edge set

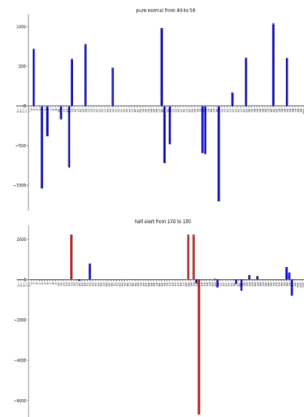
$p_t = 1$  Alert

$e_t$  is randomly chosen from the edge set



## Key Idea: Tracking the Change of Balances

$$y(t) = X(t + m) - X(t)$$



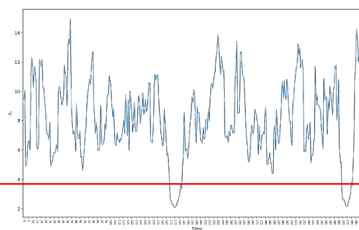
### Normal Tx

All detected steps are normal TXs

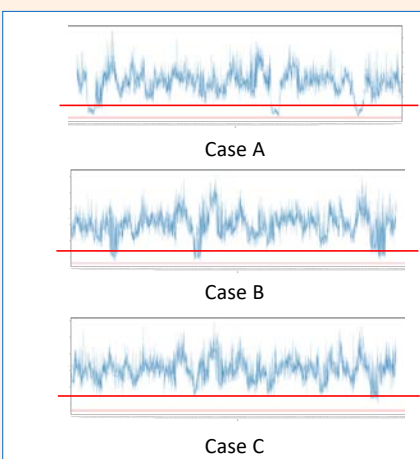
### Alert Tx.

Some alert TXs are included in detected steps

$$\text{Detection scheme: } \Lambda_t = \frac{\|y(t)\|_1}{\|y(t)\|_\infty} \geq \delta$$



$\Lambda_t = \frac{\|y(t)\|_1}{\|y(t)\|_\infty}$   
Measures the "sparsity" of  $y(t)$



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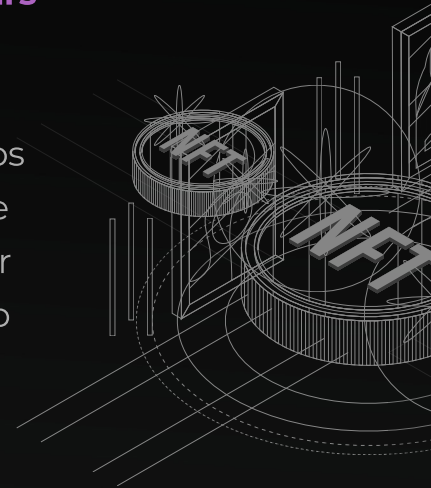
## Contact





## NAFFITI is the 1st NFT-fi Launchpad for entrepreneurs & IRL IPs

**NAFFITI strives to digitally elevate and help all entrepreneurs and relevant IRL IPs. NFT-Fi is the natural answer for startups and businesses** who are suffering in the COVID and post-Web2 era. Many honest and high quality creatives, startups and businesses are suffering the harshness of crowdfuding, are unable to take loans, find themselves unsuitable for IDO and/or are not ready for IPO. NAFFITI aims to raise the income floor up above the injunction of the poverty line for creators and enterprises affected, starting in Hong Kong and gradually expanding to SouthEast Asia, the Middle East, and beyond.



**NAFFITI** is building an automated NaaS (NFT as a Service) interface which helps creators and enterprises create NFT collections and build core communities - by providing easy-to-use templates for NFT collection creation, TTDM marketing setup and rollout, as well as advisory services for project management.



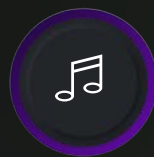
NFT-FI



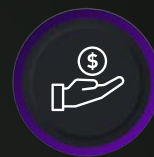
GAMEFI



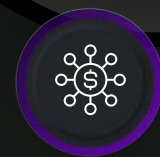
MOVIEFI



MUSICFI



SME-FI



DEFI

**NAFFITI is a democratic ecosystem where a core community of startups, creators, traders, collectors, buyers and investors can grow and build together their very own vibrant micro-economies.** This ecosystem will gestate and accelerate network effects and horizontal synergies as NFT-Fi communities are born into it. Users will receive value for their NFTs both intrinsically and extrinsically. NAFFITI is a DAO. NAFF is its governance token. All users will vote on issues ranging from platform functions and UIUX to project launches and product pricing. Future developments of the NAFF token include transaction and utility functionalities for services and other use-cases that our startups and businesses will inevitably offer, natively or otherwise.

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