

# Stephen Chan

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## Academic Positions

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### American University of Sharjah, Department of Mathematics and Statistics, Sharjah, UAE

Associate Professor in Financial Mathematics and Statistics

08/2023 – Present

Assistant Professor in Financial Mathematics and Statistics

09/2017 – 08/2023

- Awarded seven (PI) AUS Faculty Research Grants (FRG), totaling over 750,000 AED.
- Developing and launching the new Bachelor of Science in Data Science program.
- Published three industry research reports on DeFi for the Society of Actuaries (SOA).
- Awarded grants from both the Beijing National Science Foundation (BNSF) and the Swiss National Science Foundation (SNSF).

### University of Manchester, School of Mathematics, Manchester, UK.

03/2016 – 09/2017

EPSRC Doctoral Prize Research Fellow

Project title: New financial risk measures

- Developed a new financial risk measure model.
- Secured £60,000 in funding from the UK Engineering and Physical Sciences Research Council (EPSRC).

## Education and Research

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### University of Manchester, School of Mathematics, Manchester, UK.

09/2012 – 08/2016

PhD. in Financial Mathematics.

Receiving the DTA EPSRC Scholarship funding.

PhD Title: “Some contributions to statistical modelling in finance”, Supervised by Dr. Saralees Nadarajah

### University of Manchester, School of Mathematics, Manchester, UK.

09/2011 – 09/2012

Mathematical Finance MSc. Graduated With Distinction (80%)

Thesis title: “Estimation methods for Value at Risk”, supervised by Dr. Saralees Nadarajah

## Industrial Experience

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### Society of Actuaries (Member of Project Oversight Group on Decentralized Finance for Actuaries)

Illinois, USA, 2020-Present.

Published three industry research reports on decentralized finance for Actuaries.

- Decentralized Finance for Actuaries.
- Decentralized Insurance Alternatives: Market Landscape, Opportunities and Challenges.
- A Risk Classification Framework for Decentralized Finance Protocols.

### Andrews Gwynne Private Wealth Management (Industrial Collaborator) - Leeds, UK.

Independent Private Wealth Management & Multi-asset portfolio strategies Project.

Industrial research collaborator/partner on a 60,000 GBP Doctoral Prize Fellow Research Grant 2016-2018.

### Soliton Financial Analytics (Internship) - Shenzhen, China.

Risk management, capital portfolio and business performance.

Received a funded scholarship placement through the British Council's Generation UK, Summer 2014.

## Published Refereed Journal Papers

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1. **Interconnections and contagion among cryptocurrencies, DeFi, NFT and traditional financial assets: Some new evidence from tail risk driven network.** (Liao, X., Li, Q., Chan, S., Chu, J., & Zhang, Y). *Physica A: Statistical Mechanics and its Applications*, (2024, In Press).
2. **An analysis of the return-volume relationship in Decentralised finance (DeFi).** (Chu, J., Chan, S. & Zhang, Y). *International Review of Economics & Finance* (2023), 85, pp.236-254.
3. **The adaptive market hypothesis of Decentralized finance (DeFi).** (Zhang, Y., Chan, S., & Chu, J). *Applied Economics* (2022), pp.1-15.
4. **An extreme value analysis of the tail relationships between returns and volumes for high frequency cryptocurrencies.** (Chan, S., Chu, J., Zhang, Y., & Nadarajah, S). *Research in International Business and Finance*. (2022), 59, p.101541.
5. **On the expression for expected customer choice probabilities.** (Nadarajah, S., & Chan, S). *Annals of Operations*

- Research. (2021), 307 (1), pp.499-504.
6. **Dependence between bitcoin and African currencies.** (Nadarajah, S., Afuecheta, E., & Chan, S). *Quality & Quantity.* (2021), 55(4), pp.1203-1218.
  7. **Bitcoin versus high-performance technology stocks in diversifying against global stock market indices.** (Chu, J., Chan, S., & Zhang, Y). *Physica A: Statistical Mechanics and its Applications.* (2021), 580, p.126161.
  8. **Count regression models for COVID-19.** (Chan, S., Chu, J., Zhang, Y., & Nadarajah, S). *Physica A: Statistical Mechanics and its Applications.* (2021), 563, p.125460.
  9. **Folded Bivariate Distributions as Models for Magnitude Correlation.** (Afuecheta, E., Nadarajah, S., & Chan, S). *REVSTAT-Statistical Journal.* 2021.
  10. **Compound distributions for financial returns.** (Afuecheta, E., Semeyutin, A., Chan, S., Nadarajah, S., & Andrés Pérez Ruiz, D. *Plos one.* (2020), 15(10), p.e0239652.
  11. **Bias reduction in the population size estimation of large data sets.** (Chu, J., Zhang, Y., & Chan, S). *Journal Computational Statistics and Data Analysis.* (2020), 145, p.106914.
  12. **On the Market Efficiency and Liquidity of High-Frequency Cryptocurrencies in a Bull and Bear Market.** (Zhang, Y., Chan, S., Chu, J., & Sulieman, H). *J. Risk Financial Manag.* (2020), 13(1), p.8.
  13. **High frequency momentum trading with cryptocurrencies.** (Chu, J., Chan, S., & Zhang, Y). *Research in International Business and Finance.* (2020), 52, p.101176.
  14. **On moments of the unit Lindley distribution.** (Nadarajah, S., & Chan, S). *Journal of Applied Statistics.* (2020), 47(5), pp.947-949.
  15. **A Statistical Analysis of Global Economies Using Time Varying Copulas.** (Afuecheta, E., Nadarajah, S., & Chan, S) *Computational Economics.* (2020), 58(4), pp.1167-1194.
  16. **The adaptive market hypothesis in the high frequency cryptocurrency market.** (Zhang, Y., Chan, S., & Chu, J). *International Review of Financial Analysis.* (2019), 64, pp.221-231.
  17. **The Generalised hyperbolic distribution and its subclass in the analysis of a new era of cryptocurrencies: Ethereum and its financial risk.** (Zhang, Y., Chu, J., Chan, S., & Chan, B). *Physica A: Statistical Mechanics and its Applications.* (2019), 526, p.120900.
  18. **Extreme value analysis of high-frequency cryptocurrencies.** (Zhang, Y., Chan, S., & Nadarajah, S). *High Frequency.* (2019), 2(1), pp.61-69.
  19. **Stylised facts for high frequency cryptocurrency data.** (Zhang, Y., Chan, S., & Chu, J). *Physica A: Statistical Mechanics and its Applications* (2019), 513, pp. 598-612.
  20. **The exact distribution of the sum of stable random variables.** (Nadarajah, S., & Chan, S). *Journal of Computational and Applied Mathematics.* (2019), 349, pp.187-196.
  21. **Flexible models for stock returns based on Student's t distribution.** (Afuecheta, E., Chan, S., & Nadarajah, S) *The Manchester School,* (2019), 87(3), pp.403-427.
  22. **On the distribution of maximum of multivariate normal random vectors.** (Nadarajah, S., Afuecheta, E., & Chan, S) *Communications in Statistics-Theory and Methods.* (2019), 48(10), pp.2425-2445.
  23. **An alternative measure of positive correlation.** (Nadarajah, S., Chu, J., & Chan, S) *International Journal of Mathematical Education in Science and Technology.* (2019), 50(4), pp.642-645.
  24. **Risk: An R package for financial risk measures.** (Chan, S., & Nadarajah, S) *Computational Economics.* (2019), 53(4), pp.1337-1351.
  25. **GARCH Modelling of Cryptocurrencies** (Chu, J., Chan, S., Nadarajah, S., & Osterrieder, J). *Journal of Risk and Financial Management.* (2017), 10 (4) p.17.
  26. **A Statistical Analysis of Cryptocurrencies** (Chan, S., Chu, J., Nadarajah, S., & Osterrieder, J). *Journal of Risk and Financial Management.* (2017), 10 (2) p.12.
  27. **Nuclear Catastrophe Risk Bonds in a Markov Dependent Environment** (Shao, J., Pantelous, A., Chan, S., & Nadarajah, S). *Journal of Risk and Uncertainty in Engineering Systems.* (2017), 3 (4), p.04017018
  28. **Discrete distribution based on inter arrival times with application to football data** (Nadarajah, S., & Chan, S). *Communications in statistic.* (2017), 47 (1), pp.147-165.
  29. **Is the wealth of the Forbes 400 lists really Pareto distributed** (Chan, S., Chu, J., & Nadarajah, S). *Economics Letters.* (2016), Elsevier, 152, pp.9-14.
  30. **An R package for value at risk and expected shortfall** (Chan, S., Afuecheta, E., & Nadarajah, S). *Communications in Statistics.* (2016), Taylor and Francis, 45 (9), pp.3416-3434.
  31. **Statistical analysis of the exchange rate of Bitcoin** (Chu, J., Chan, S., & Nadarajah, S). *PLoS one.* (2015), 10 (7), p.e0133678.
  32. **A note on “Modelling exchange rate returns: which flexible distribution to use?”** (Afuecheta, E., Nadarajah, S., & Chan, S) *Quantitative Finance.* (2015), Taylor and Francis, 15 (11) pp.1777-1785.
  33. **Extreme value analysis of electricity demand in the UK** (Chan, S., & Nadarajah, S). *Applied Economics Letters.* (2015), Taylor and Francis, 22 (15), pp.1246-1251.
  34. **GARCH modelling for five popular commodities** (Afuecheta, E., Nadarajah, S., & Chan, S). *Empirical Economics.* (2015), Springer, 48 (4), pp.1691-1712.
  35. **Estimation methods for expected shortfall** (Nadarajah, S., Zhang, B., & Chan, S). *Quantitative Finance.* (2014), 14 (2) pp.271-291.
  36. **A statistical study of racism in English Football** (Chu, J., Afuecheta, E., Nadarajah, S., & Chan, S). *Quality & Quantity.* (2013), Springer, 48 (5), pp.2915-2937.
  37. **A double generalized Pareto distribution** (Afuecheta, E., Nadarajah, S., & Chan, S). *Statistics and Probability Letters.* (2013), Elsevier, 83 (12), pp.2656-2663.

38. **On the characteristic function for asymmetric Student's t distributions** (Nadarajah, S., Chan, S., & Afuecheta, E). *Economics Letters*. (2013), Elsevier, 121 (2), pp.271-274.
39. **Extreme value analysis for emerging African markets** (Nadarajah, S., Chan, S., & Afuecheta, E). *Quality & Quantity*. (2013), Springer, 4 (3), pp.9840-9846.

## Published Book Chapters

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1. Stylized facts of decentralized finance (Zhang, Y., Chan, S., Chu, J., Lao, X. and Min, H), in La Torre, D. (ed.) *AI for Finance and Beyond*. World Scientific Publishing Europe, (June 2024). <https://doi.org/10.1142/q0449>
2. *Blockchain and Cryptocurrencies* (Chan, S., Chu, J., Zhang, Y., & Nadarajah, S). *J. Risk Financial Manag.* (2020). <https://doi.org/10.3390/books978-3-03943-534-0>.
3. Estimation methods for value at risk (with Nadarajah, S). Chapter 12 of *Extreme Events in Finance: A Handbook of Extreme Value Theory and Its Applications* (edited by F. Longin), pp. 283-356. John Wiley and Sons, Chichester. (2016)
4. 'MOATS Competitive Advantages of Buffet & Munger Businesses: Berkshire Hathaway' book, published Jan 2012 by publisher Acalmix and author Bud Labitan. Chapter published " **US Liability Insurance Group**" by Bud Labitan with Stephen Chan pages (307-310) and " **Wesco Financial Corporation**" by Bud Labitan with Stephen Chan pages (341-346).

## Software Packages

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1. Nadarajah, S, Chan, S (2017). R package "**Risk**", Computes 26 Financial Risk Measures for Any Continuous Distribution. R package version 1.0. <https://cran.r-project.org/web/packages/Risk/Risk.pdf>
2. Nadarajah, S, Chan, S, and Afuecheta, E (2013). R package "**VaRES**", Computes value at risk and expected shortfall for over 100 parametric distributions. R package version 1.0. <http://cran.r-project.org/web/packages/VaRES/index.html>

## Research Project Grants and Funding

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- **Principle Investigator: 5,000 AED** American University of Sharjah FRG Supplemental Undergraduate Employment Grant 2024. (FRG-S24-S07), 2024.
- **Principle Investigator: 25,000 AED** American University of Sharjah Faculty Research Grant: "From Digits to Dollars: The Evolution of Price Impact in Digital Assets", (FRG24-E-S25), 2024-2025.
- **Principle Investigator: 248,800 AED** American University of Sharjah Faculty Research Grant: "*Anomaly and Fraud Detection in Blockchain and Cryptocurrency Networks*", (FRG23-C-S68), 2023-2025.
- **Principle Investigator: 5,000 AED** American University of Sharjah FRG Supplemental Undergraduate Employment Grant 2023. (FRG-S23-S07), 2023.
- **Principle Investigator: 121,250 AED** American University of Sharjah Faculty Research Grant: "*The Maturity of Decentralised Finance (DeFi) Markets: A Market Efficiency Test Based on Trading Strategies*", (FRG22-E-S95), 2022-2023.
- **Principle Investigator: 79,720 AED** American University of Sharjah Faculty Research Grant: "*Understanding the Risk for Digital Cryptocurrencies*", (FRG21-M-S41), 2021-2023.
- **Principle Investigator: 130,000 AED** American University of Sharjah Faculty Research Grant (Smart Cities Research): "*The Good, the Bad, And the Trendy: the Role Of Sentiment-Based Trading in the Cryptocurrency Markets, and the Case for a Unique Lexicon*", (FRG20-M-S111), 2020-2022.
- **Principle Investigator: 25,000 AED** American University of Sharjah Faculty Research Grant: "*Understanding the role of active and passive portfolio's in high frequency cryptocurrency trading*", (FRG19-S-S135), 2019-2021.
- **Principle Investigator: 135,700 AED** American University of Sharjah EFRG Smart Cities Research Grant: "*Actuarial applications of Blockchain cryptocurrencies*", (EFRG18-SCR-CAS-72), 2018-2020.
- **Principle Investigator: 5,000 AED** CAS Seed Grant, American University of Sharjah, 2017.
- **Principle Investigator: 7,500 GBP** secured multiple grants from the European Cooperation in Science and Technology (COST); Bank of England Research Donations Committee; The American Risk and Insurance Association (ARIA); The Institute of Mathematics and its Applications (IMA), to host the "[Mathematics for Industry Conference: Blockchain and Cryptocurrencies](#)", 2017.
- **Principle Investigator: 60,000 GBP** Engineering and Physical Sciences Research Council (EPSRC) Doctoral Prize Fellow Research Grant: "*New Financial Risk Measures*", (P118375-D07), 2015-2017.
- **Co-Principle Investigator/ International Partner: 4,472,972 EUR** [Marie Skłodowska-Curie Action \(MSCA\)](#), "[MSCA Industrial Doctoral Network on Digital Finance](#)", (with Osterrieder, J.) 2024-2027.
- **Co-Principle Investigator: 25,000 CHF** ETH Zurich Leading House - Research Partnership Grants, (ARPG\_112023\_8), "Graph-Theoretic Analysis for Consumer Credit Risk Assessment in Personal Lending", (with Chu, J. and Osterrieder, J.) 2024-2025.
- **Co-Principle Investigator: RMB 200,000** Beijing National Science Foundation 2023 International Scientists Project (IS23126), "Research on Detecting Illicit Activity in Digital Cryptocurrency Networks", (with Chu, J.) 2023-2025.
- **Co-Principle Investigator: 5,000 AED** 2024 CAS Undergraduate Research Grant (CAS-URG24), "Behavioral changes in captive Bengal Slow Lorises (*Nycticebus bengalensis*) with enrichments", (with Said Ismail, K.) 2024.
- **Co-Principle Investigator: £9,000 GBP** Centre for Digital Trust and Society (CDTS) Seedcorn, University of Manchester, "Blockchain Forensics: Criminal Analysis using R Shiny", (with Zhang, Y.) 2023-2024.

- **Co-Principle Investigator: £2,000 GBP** Campion Grant, Manchester Statistical Society, “Crafting Anomaly and Fraud Detection Tools for Blockchain Integrity: Building the Path for the UK to Become a Global Blockchain Tech Leader”, (with Zhang, Y.) 2023-2024.
- **Co-Principle Investigator: 5,000 AED** 2022 CAS Undergraduate Research Grant (CAS-URG22): “The effect of the Russia-Ukraine war on commodities.”, (with Chandrashekhar, D.) 2022.
- **Co-Principle Investigator: 5,000 AED** 2022 CAS Undergraduate Research Grant (CAS-URG22): “Composite lognormal distributions for cosmic voids in simulations and mocks”, (with Hamed, N.) 2022.
- **Co-Principle Investigator: 6,700 CHF** National Science Foundation (SNSF) Scientific Exchanges (with Osterrieder, J.), (IZSEZO\_211195), 2022-2023.
- **Co-Principle Investigator: 20,000 USD** Renmin University of China, International Research, Cooperation and Expansion Support Grant: “*The maturity of crypto markets: A market efficiency test based on trading strategies*”, (with Chu, J. and Zhang, Y.), 2021.
- **Co-Principle Investigator: 4,100 GBP** University of Manchester Fintech Seedcorn Funding Grant: “*Cryptocurrencies and Blockchain Technology*” (with Chu, J. and Nadarajah, S.), 2017.

## Honours and Awards

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- **£1000** academic visit grant, European Cooperation in Science and Technology (COST), academic visit to Bern University of Applied Science, Bern, Switzerland, 2023.
- **£1000** academic visit grant, University of Manchester Institute for Mathematical Sciences (MIMS), The University of Manchester, UK, 2023.
- **£3000** travel grant, selected by the [Scientific Review Board of the Council of the Hong Kong Laureate Forum](#) (the HKLF) and the Government of the Hong Kong Special Administrative Region, to be a Young Scientist presenting (only 200 worldwide selected in different disciplines) at the 2023 Forum on my research projects in blockchain. Link:
- **£1000** travel grant, University of Manchester Institute for Mathematical Sciences (MIMS), academic visit to Department of Mathematics, The University of Manchester, UK, 2022.
- Journal of Risk and Financial Management (JRFM) – 2019 Best Paper Award (Chu, J., Chan, S., Nadarajah, S., Osterrieder, J. GARCH Modelling of Cryptocurrencies. Journal of Risk and Financial Management. 2017, 10, 17).
- **£4000** academic visit grant, University of Manchester Data Science Institute Travel Bursary Fund, visiting scholars scheme, 2017.
- **£1000** grant, University of Manchester Margaret Elizabeth Lee Fellowship, 2017.
- **\$2000** grant, Institute of Mathematical Statistics (IMS) Travel Award, to attend and present at the Joint Statistical Meetings (JSM). Baltimore Convention Center, Baltimore, USA, 2017.
- Honourable mention award in Engineering Sciences for the ABTA 2017 Doctoral Researcher Awards.
- Best poster award for article “GARCH modeling for five popular commodities”, Risk Analysis section in the American Statistical Association at the Joint Statistical Meetings (JSM) 2016.
- Awarded a Canadian Statistical Sciences Institute travel grant, to attend and present at the International Conference on Statistical Distributions and Applications. Crown Plaza, Niagara Falls, Canada, 2016.
- Awarded a National Science Foundation grant, to attend and present at the 9<sup>th</sup> Conference on Extreme Value Analysis. University of Michigan, Michigan, USA, 2015.
- Awarded the Central Michigan University travel grant, to attend and present at the International Conference on Statistical Distributions and Applications. Central Michigan University, Michigan, USA, 2013.

## Teaching Experience

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**American University of Sharjah, Department of Mathematics and Statistics, Sharjah, UAE** 09/2017 – Present

### Graduate level

- MTH 507 Financial Mathematics I (Spring 2020).

### Undergraduate level

- STA 202 Introduction to Statistics for Social Sciences (Spring/Fall/Summer: 2017-2024).
- STA 201 Introduction to Statistics for Engineering and Natural Sciences (Spring/Fall: 2017-2024).
- MTH 101 Mathematics for Business I (Spring/Fall: 2017-2020).

**Teaching Assistant, School of Mathematics, University of Manchester, Manchester, UK** 2013 – 2016

- Mathematics 68181 Extreme Values and Financial Risk, Autumn (2013-2016) (Lead demonstrator)
- Mathematics 19842 OF2 (Probability & Vectors), Spring (2014-2016) (Lead demonstrator)
- Mathematics 20701 Probability 2, Autumn (2013)
- Mathematics 10141 Probability 1, Autumn (2013-2016) (Lead demonstrator)
- Mathematics 20912 Introduction to Financial Mathematics, Spring (2013-2016)
- Mathematics 20802 Statistical Methods, Spring (2013-2015) (Lead demonstrator)
- Mathematics 10282 Introduction to Statistics, Spring (2014)

## Advising/ Supervising Experience

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I have supervised and/ or served as a member of the graduate committee of the following mathematics students:

- Faizen Badar, Undergraduate Senior Project, American University of Sharjah (2024-)
- Hadeel Elawady, Undergraduate Senior Project, American University of Sharjah (2023-2024)
- Leen Faraj, Undergraduate Research Project, American University of Sharjah (2023)
- Kareem Said Ismail, CAS Undergraduate Research Project, American University of Sharjah (2024-)
- Lama Sayegh, M.Sc., Research project, American University of Sharjah (2023)
- Jiahang Lyu, Ph.D. Thesis University of Manchester, UK (2022)
- Abdoulaye Faye, M.Sc. Thesis, African Institute for Mathematical Sciences, Senegal (2022)
- Ward Almazloum, M.Sc. Senior Project, American University of Sharjah (2022-2024)
- Nour Hamed, CAS Undergraduate Research Project, American University of Sharjah (2022)
- Durga Chandrashekhar, CAS Undergraduate Research Project, American University of Sharjah (2022)
- Brandon Chan, M.Sc., University of Warwick, UK (2019)

## Invited Talks and Seminars

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- Seminar, School of Statistics, Renmin University of China, Beijing, China. “Empirical analysis of illicit transactions on Blockchain network”. 20<sup>th</sup> May 2024.
- Invited Speaker, AUS Innovation Expo: Future of Research and Technology in the UAE, AUS, Sharjah, UAE. “A Real-time Risk Rating System for Digital Assets”. 6<sup>th</sup> May 2024.
- The Society of Actuaries (SOA) 2022 ImpACT Conference. Orlando Marriott World Center, Florida, USA. “Decentralized Finance for Actuaries”. 26<sup>th</sup> - 29<sup>th</sup> October 2022.
- Seminar, Institute of Statistics and Big Data, School of Statistics, Renmin University of China, Beijing, China. “Anomaly and fraud detection in blockchain networks”. 21<sup>st</sup> December 2023.
- Invited Speaker, The Inaugural Hong Kong Laureate Forum, Hong Kong Science Park, Shatin, Hong Kong. “A Real-time Risk Rating System for Digital Assets”. 13<sup>th</sup> - 18<sup>th</sup> November 2023.
- Seminar, Bern University of Applied Science, Bern, Switzerland. “Anomaly and fraud detection in blockchain networks”. 1<sup>st</sup> July 2023.
- Invited Speaker, The Society of Actuaries (SOA) 2022 ImpACT Conference. Orlando Marriott World Center, Florida, USA. “Decentralized Finance for Actuaries”. 26<sup>th</sup> - 29<sup>th</sup> October 2022.
- Keynotes speaker, 2022 International Conference on Computational Social Sciences and Sustainability. Wuhan University of Technology, Wuhan, China. “An analysis of the return-volume relationship in decentralized finance (DeFi)”. 29<sup>th</sup> June 2022.
- Keynotes speaker, 9<sup>th</sup> International Conference on Economics, Finance and Statistics (ICEFS2021). Hong Kong Shue Yan University, Hong Kong. “An analysis of the return-volume relationship in decentralised finance (DeFi)”. 29<sup>th</sup> December 2021.
- Seminar, Institute of Mathematical and Computer Sciences of the University of São Paulo (ICMC-USP), Sao Carlos, Brazil. “Bitcoin versus high-performance technology stocks in diversifying against global stock market indices”. April 9<sup>th</sup>, 2021.
- Keynotes speaker, 4<sup>th</sup> International Conference on Economics, Finance and Statistics (ICEFS2020). Hong Kong Shue Yan University, Hong Kong. “Bitcoin versus High-Performance Technology Stocks in Diversifying Against Global Stock Market Indices”. 5<sup>th</sup> December 2020.
- Seminar, Sharakah Mathfest 2018, American University of Sharjah, UAE, “Blockchain and Cryptocurrencies”. March 15<sup>th</sup>, 2018.
- Seminar, Institute of Mathematical and Computer Sciences of the University of São Paulo (ICMC-USP), Sao Carlos, Brazil. “Statistical analysis on Bitcoin and other cryptocurrency”. January 5<sup>th</sup>, 2018.
- Seminar, Department of Mathematics and Statistics, American University of Sharjah, UAE, “Statistical Analysis of the Exchange Rate of Bitcoin and Other Cryptocurrencies”. October 3<sup>rd</sup>, 2017.

## Conference presentations

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- 6<sup>th</sup> International Conference on Econometrics and Statistics (EcoSta 2023). Waseda University, Tokyo, Japan. “*Stylized facts of decentralized finance (DeFi)*” (contributed talk). 1<sup>st</sup>– 5<sup>th</sup> August 2023.
- Royal Statistical Society (RSS) 2023 International Conference. Harrogate International Centre, Harrogate, UK. “*The Financial Impact of War on Cryptocurrencies*” (contributed talk). 4<sup>th</sup> – 7<sup>th</sup> September 2023.
- 16<sup>th</sup> International Conference on Computational and Financial Econometrics. King's College London, UK. “An analysis of the return-volume relationship in Decentralised finance (DeFi)”. 17<sup>th</sup> -19<sup>th</sup> December 2022.
- Royal Statistical Society (RSS) 2022 International Conference. P&J Live, Aberdeen, UK. “*An analysis of the return-volume relationship in decentralized finance (DeFi)*” (contributed talk). 12<sup>th</sup> – 15<sup>th</sup> September 2022.
- 5<sup>th</sup> International Conference on Econometrics and Statistics (EcoSta 2022). Ryukoku University, Kyoto, Japan. “*An analysis of the return-volume relationship in decentralized finance (DeFi)*” (contributed talk). 4<sup>th</sup> – 6<sup>th</sup> June 2022.
- 4<sup>th</sup> International Conference on Econometrics and Statistics (EcoSta 2021). Hong Kong University of Science and Technology, Hong Kong. “*Bitcoin versus high-performance technology stocks in diversifying against global stock market indices*” (Talk). 24<sup>th</sup> – 26<sup>th</sup> June 2021.
- 2019 IMS China International Conference on Statistics and Probability. Dalian International Convention Center, Dalian, China. “*The Generalised hyperbolic distribution and its subclass in the analysis of a new era of cryptocurrencies: Ethereum and its financial risk*” (Talk). 6<sup>th</sup>-10<sup>th</sup> July 2019.

- 3<sup>rd</sup> International Conference on Econometrics and Statistics (EcoSta 2019). The National Chung Hsing University (NCHU), Taichung, Taiwan. “*The generalised hyperbolic distribution and its subclass in the analysis of a new era of cryptocurrencies: Ethereum*” (Talk). 25<sup>th</sup> – 27<sup>th</sup> June 2019.
- 3<sup>rd</sup> International Conference on Economics, Finance and Statistics (ICEFS2019). Hong Kong Shue Yan University, Hong Kong. “*Stylised facts for high frequency cryptocurrency data*” (Talk). 28<sup>th</sup> - 30<sup>th</sup> April 2019.
- Joint Statistical Meeting 2018 (JSM). Vancouver Convention Centre, Vancouver, British Columbia, Canada. “*High Frequency Momentum Trading with Cryptocurrencies*” (Research Poster). 28<sup>th</sup> July – 2<sup>nd</sup> August 2018.
- 2<sup>nd</sup> International Conference on Economics, Finance and Statistics (ICEFS2018). South Pacific Hotel, Hong Kong. “*Ethereum: Bitcoin 2.0 - taking the road less travelled*” (Talk). 14<sup>th</sup> - 15<sup>th</sup> April 2018.
- Joint Statistical Meetings 2017 (JSM). Baltimore Convention Center, Baltimore, USA. “*Statistical Analysis of the Exchange Rate of Bitcoin and Other Cryptocurrencies*” (Research Poster). 29<sup>th</sup> July - 3<sup>rd</sup> August 2017.
- 1<sup>st</sup> International Conference on Econometrics and Statistics (EcoSta 2017). Hong Kong University of Science and Technology, Hong Kong. “*A Statistical analysis of the Exchange Rate of Bitcoin*” (Talk). 15<sup>th</sup> - 17<sup>th</sup> June 2017.
- International Conference on Statistical Distributions and Applications. Crown Plaza, Niagara Falls, Canada. “*Extreme value analysis of electricity demand in the UK*” (Research Poster). 14<sup>th</sup>-16<sup>th</sup> October 2016.
- Joint Statistical Meetings (JSM) 2016. McCormick Place, Chicago, USA. “*GARCH modeling for five popular commodities*” (Research Poster). 30<sup>th</sup> July - 4<sup>th</sup> August 2016.
- The 4<sup>th</sup> Institute of Mathematical Statistics Asia Pacific Rim Meeting. Chinese University of Hong Kong. “*Extreme value analysis of electricity demand in the UK*” (Talk). 27<sup>th</sup> - 30<sup>th</sup> June 2016.
- 9<sup>th</sup> Conference on Extreme Value Analysis. University of Michigan, Michigan, USA. “*Extreme value analysis of electricity demand in the UK*” (Talk). 15<sup>th</sup> - 19<sup>th</sup> June 2015.
- Financial Modelling Post 2008. University of Manchester, Manchester, UK. “*GARCH modeling for five popular commodities*” (Research Poster). 30<sup>th</sup> - 31<sup>th</sup> October 2013.
- International Conference on Statistical Distributions and Applications. Central Michigan University, Michigan, USA. “*On the characteristic function for asymmetric Student’s t distribution*” (Research Poster). 10<sup>th</sup> - 12<sup>th</sup> October 2013.
- 8<sup>th</sup> Conference on Extreme Value Analysis. Fudan University, Shanghai, China. “*Extreme value analysis for emerging African markets*” (Research Poster). 8<sup>th</sup>-13<sup>th</sup> July 2013.

## Service and Affiliations

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- **Member of Project Oversight Group** on Decentralized Finance for Actuaries, Society of Actuaries, 2020-Present  
Published three industry research reports on decentralized finance for Actuaries.
  - Decentralized Finance for Actuaries.
  - Decentralized Insurance Alternatives: Market Landscape, Opportunities and Challenges.
  - A Risk Classification Framework for Decentralized Finance Protocols.
- **Member of European Cooperation in Science and Technology (COST) Action CA19130**, Fintech and Artificial Intelligence in Finance - Towards a transparent financial industry (FinAI) (2020-2024, 600k EUR).
- **Invited Session Organiser**, 5th International Conference on Econometrics and Statistics (EcoSta 2022), Ryukoku University, Kyoto, Japan, 4<sup>th</sup> – 6<sup>th</sup> June 2022. Joint organiser (with Chu, J.) for the invited organised session EO059: “Econometrics and statistics in blockchain, digital currencies, and decentralised finance”.
- **Chair**, “Bits and Blocks (Blockchain)” Workshop 2021, Online, 18<sup>th</sup> December 2021. Joint organiser (with Chu, J.) hosting a small one-day workshop bringing together individuals from academia and industry, to share the latest knowledge, research, and developments in the blockchain, decentralised finance, and digital assets.
- **Invited Session Organiser**, 4th International Conference on Econometrics and Statistics (EcoSta 2021), Hong Kong University of Science and Technology, Hong Kong, 24<sup>th</sup> – 26<sup>th</sup> June 2021. Joint organiser (with Chu, J.) for the invited organised session EO185: “Econometrics and statistics with applications to cryptocurrencies and the blockchain”.
- **Guest Editor**, Special Issue “Smart Cities Research in Enabling Technologies and Tools”, Journal of Risk and Financial Management, 2020-2022.
- **Guest Editor**, Special Issue “Blockchain and Cryptocurrencies”, Journal of Risk and Financial Management, 2019-2020.
- **AUS Executive and Professional Education course on “Decrypting Cryptocurrencies”** Fall 2018.
- **Guest Editor**, Special Issue “Extreme Values and Financial Risk”, Journal of Risk and Financial Management, 2018.
- **Chair**, “Mathematics for Industry: Blockchain and Cryptocurrencies” Conference, University of Manchester, 2018. Participated in the planning of the conference schedule; invitation of guest speakers; arrangement of transport, accommodation, and catering for attendees; conference website and publicity. Successfully secured multiple grants totalling over £7500 from the European Cooperation in Science and Technology (COST); Bank of England Research Donations Committee; The American Risk and Insurance Association (ARIA); The Institute of Mathematics and its Applications (IMA), to host the conference.
- **Organising Committee**, “Artificial Intelligence in Industry and Finance” 2nd European COST Conference on Mathematics for Industry in Switzerland, Zurich University of Applied Sciences, 2017.
- **Management Committee** of the “3<sup>rd</sup> & 4<sup>th</sup> Symposium on Quantitative Finance and Risk Analysis” (2017, 2018).

## Professional Membership

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- American Statistical Association (ASA), Institute of Mathematical Statistics (IMS) and International Chinese Statistical Association (ICSA).