

JIN XING LIM

Software Engineer @ Pi Squared Inc.

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EXPERIENCE

Software Engineer

Pi Squared Inc.

📅 Aug 2024 - present

Contribute to the Math Proof Generation Team by developing components that produce machine-checkable proofs of program executions, enhancing blockchain interoperability using zero-knowledge (ZK) technology.

Formal Verification Engineer

Runtime Verification Inc.

📅 Sept 2022 - Aug 2024

Team lead and main developer of ERCx, a comprehensive tool suite designed to verify conformance to ERC (Ethereum Request for Comments) standards and ensure the security of smart contracts in the Ethereum ecosystem. Utilized the Foundry testing framework to perform thorough analysis and validation. Contributed to the Kontrol project, an open-source tool for security analysis and formal verification of EVM smart contracts.

Data Science Intern

Entend.ai

📅 July 2019 - Sept 2019

Translated mathematical models for machine reasoning into software and to built applications based on the software

Lecturer

Temasek Polytechnic

📅 July 2014 - Aug 2018

Subject leader and lecturer for the following courses: Mathematics for Applied Science - Statistics for Applied Science - Biostatistics - Scripting for Bioinformatics

EDUCATION

Ph.D. in Engineering Systems and Design

Singapore University of Technology and Design

📅 Sept 2018 - Aug 2022

Advisors: Georgios Piliouras and Shaowei Lin

PhD Thesis: Incentivized Mechanism Design for Collaborative Proofs and Programs through Theorem Provers and Blockchain

B.Sc. in Mathematics

Second Class Honours (Upper/Distinction)

National University of Singapore

📅 Aug 2010 - June 2014

Advisor: Yang Yue

Honours' Year Project: "Decidability of the First Order Theory of Boolean Algebra" by Tarski, A.

PROJECTS

ERCx

ERCx team @ RV

📅 2023

📍 Website

Formalization of Divide-and-Conquer in Coq

Jin Xing Lim and Shaowei Lin

📅 2021

📍 Github

Game Theoretical Approaches in Multi-Agent Reinforcement Learning Policy Space Response Oracles

Jin Xing Lim and Sai Ganesh Nagarajan

📅 2019

📍 Github

Exploring Efficacy of Embeddings on Relation Network for Natural Language Question Answering Task

Jin Xing Lim, Zhangsheng Lai and Aik Beng Ng

📅 2018

📍 Github

PUBLICATIONS AND WRITINGS

👥 Conference

- Lim, J. X. [Jin Xing], Monnot, B., & Piliouras, G. (2022). Blockchain-based mechanism design for collaborative mathematical research. In *IEEE International Conference on Blockchain and Cryptocurrency (ICBC 2022)*, Shanghai, China.
 - Lim, J. X. [Jin Xing], Monnot, B., Lin, S., & Piliouras, G. (2021). A Blockchain-Based Approach for Collaborative Formalization of Mathematics and Programs. In *2021 IEEE International Conference on Blockchain (Blockchain-2021)*, Virtual, Australia.
 - Lim, J. X. [Jin Xing], Monnot, B., Piliouras, G., & Lin, S. (2021). (Auto)Complete this Proof: Decentralized Proof Generation via Smart Contracts. In *Online proceedings of the 6th Conference on Artificial Intelligence and Theorem Proving (AITP 2021)* (pp. 74–76). Aussois, France.
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📄 Journal Articles

- Lim, J. X. [Jin Xing.], & Piliouras, G. (2021). Phd thesis: Incentivized mechanism design for collaborative proofs and programs through blockchain and theorem provers. Singapore University of Technology and Design.
 - Lim, J. X. [Jin Xing], Li, B. T., & Ling, M. H. T. (2019). Sequence composition. In S. Ranganathan, M. Gribskov, K. Nakai, & C. Schönbach (Eds.), *Encyclopedia of bioinformatics and computational biology - volume 3* (pp. 323–326). Elsevier.
 - Lim, J. X. [Jin Xing], & Ling, M. H. T. (2019). Gene ontology and kegg orthology mappings for 10 strains of pseudomonas stutzeri. In *Ec proteomics and bioinformatics - volume 3.1* (pp. 12–18). ECronicon.
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📖 Books

- Tan, H. M., Li, B., Lai, Z., Lim, J. X., & Chew, S. (2016). *Mathematics for applied science*. McGraw Hill Education.
 - Tan, H. M., Li, B., Lai, Z., Lim, J. X., & Chew, S. (2015). *Statistics for applied science*. McGraw Hill Education.
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📝 Blog posts

- Is my ERC-4626 vault token up to the standard? (2023). <https://runtimeverification.com/blog/is-my-erc-4626-vault-token-up>
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HONOURS & AWARDS

Global Young Scientist Summit 2020

Singapore University of Technology and Design Ph.D. Fellowship (2018 - 2022)

PROGRAMMING SKILLS

Python, Solidity, Foundry



Coq, K framework



R, Erlang, Julia



COURSES ATTENDED

Secureum Bootcamp Epoch 0

Rajeev Gopalakrishna

📅 Dec 2021

📍 Secureum

Ethereum Blockchain Developer Bootcamp With Solidity (2021)

Ravinder Deol, Thomas Wiesner and Martin Sterlicchi

📅 Nov 2021

📍 Udemy

Structural Equation Modelling Workshop Using Stata

Chan Yiong Huak

📅 Dec 2017

📍 National University Health System (NUHS)

R Bioconductor Training for Bioinformatics

Alfred Ang

📅 Dec 2016

📍 Tertiary Infotech Pte Ltd

Biostatistics for Research (Advanced) Workshop

Chan Yiong Huak

📅 Dec 2016

📍 Singapore General Hospital Postgraduate Allied Health Institute

Biostatistics for Research (Basic/Intermediate) Workshop

Chan Yiong Huak

📅 Oct 2016

📍 Singapore General Hospital Postgraduate Allied Health Institute

Data Analytics in Healthcare Course

K C Lun

📅 Nov 2014

📍 Gateway Consulting Singapore

AREAS OF INTEREST

Blockchain: Blockchain applications - Formal verification of blockchain - Smart contract security

Theorem Prover: Formalization and verification of mathematics, programs and protocols - Automated reasoning tools on proof assistants

Others: Mathematical logic - Type theory - Category theory - Program synthesis - Explainable AI

REFEREES

Assoc. Prof. Georgios Piliouras

@ Associate Professor - Engineering Systems and Design, Singapore University of Technology and Design
✉ georgios.piliouras@gmail.com

Dr. Shaowei Lin

@ Director of Research - Topos Institute
✉ shaoweilin.research@gmail.com

Prof. Yang Yue

@ Professor - Department of Mathematics, National University of Singapore
✉ matyangy@nus.edu.sg