

# JIN XING LIM

Formal Verification Engineer @ Runtime Verification Inc.

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## EXPERIENCE

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Formal Verification Engineer

**Runtime Verification Inc.**

📅 Sept 2022 - present

Main developer of ERCx, a tool suite that checks for conformance to ERC (Ethereum Request for Comments) standards and important security properties of a smart contract in the Ethereum ecosystem through the use of the Foundry testing framework

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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

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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

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## EDUCATION

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Ph.D. in Engineering Systems and Design

**Singapore University of Technology and Design**

📅 Sept 2018 - Aug 2022

Advisors: Georgios Piliouras and Shaowei Lin

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

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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.

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## PROJECTS

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ERCx

**ERCx team @ RV**

📅 2023

📍 Website

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Formalization of Divide-and-Conquer in Coq

**Jin Xing Lim and Shaowei Lin**

📅 2021

📍 Github

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# 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

### 👥 Conference

- Lim, J. X., 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., 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., 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.

### 📄 Journal Articles

- Lim, J. X., 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., & 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.

### 📖 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.

## HONOURS & AWARDS

Global Young Scientist Summit 2020

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

## PROGRAMMING SKILLS

Python, Solidity



Coq, K framework



R, Erlang, Julia



## COURSES ATTENDED

Secureum Bootcamp Epoch 0

Rajeev Gopalakrishna

📅 Dec 2021

📍 Secureum

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## Ethereum Blockchain Developer Bootcamp With Solidity (2021)

**Ravinder Deol, Thomas Wiesner and Martin Sterlicchi**

📅 Nov 2021

📍 Udemy

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## Structural Equation Modelling Workshop Using Stata

**Chan Yiong Huak**

📅 Dec 2017

📍 National University Health System (NUHS)

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## R Bioconductor Training for Bioinformatics

**Alfred Ang**

📅 Dec 2016

📍 Tertiary Infotech Pte Ltd

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## Biostatistics for Research (Advanced) Workshop

**Chan Yiong Huak**

📅 Dec 2016

📍 Singapore General Hospital Postgraduate Allied Health Institute

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## Biostatistics for Research (Basic/Intermediate) Workshop

**Chan Yiong Huak**

📅 Oct 2016

📍 Singapore General Hospital Postgraduate Allied Health Institute

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## Data Analytics in Healthcare Course

**K C Lun**

📅 Nov 2014

📍 Gateway Consulting Singapore

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## AREAS OF INTEREST

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

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

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

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## REFEREES

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**Assoc. Prof. Georgios Piliouras**

@ Associate Professor - Engineering Systems and Design, Singapore University of Technology and Design

✉ georgios.piliouras@gmail.com

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**Dr. Shaowei Lin**

@ Director of Research - Topos Institute

✉ shaoweilin.research@gmail.com

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**Prof. Yang Yue**

@ Professor - Department of Mathematics, National University of Singapore

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