

# Xuanrui Qi

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## Education

- Oct 2019 — **M.S. in Mathematical Sciences**, *Graduate School of Mathematics, Nagoya University*, Nagoya, Aichi, Japan.  
Aug 2021 (expected) **Advisor**: Jacques Garrigue
- May 2019 **M.S. in Computer Science**, *Tufts University*, Medford, MA, USA.  
**Advisor**: Samuel Z. Guyer  
**Unofficial mentors**: Cyrus Omar (University of Michigan), Jacques Garrigue (Nagoya University)  
**GPA**: 3.77/4.0
- May 2018 **B.S. in Computer Science**, *magna cum laude, honors in thesis*, *Tufts University*, Medford, MA, USA.  
**Second major**: international relations. **Minor**: mathematics.  
**Advisor**: Samuel Z. Guyer  
**GPA**: 3.72/4.0
- June 2014 **High School Diploma**, *Shenzhen Middle School*, Shenzhen, Guangdong, China.

## Research Interests

Type theory, mechanized formal proofs & proof assistants, type systems for programming languages, topos theory and categorical logic.

## Research Positions

- June 2018 – August 2018 **Research Visitor**, *Graduate School of Mathematics, Nagoya University*, Nagoya, Japan.  
Hosted by and worked with Professor Jacques Garrigue.
- March 2017 – May 2018 **Research Assistant**, *Department of Computer Science, Tufts University*, Medford, MA, USA.  
Research assistant under Professor Sam Guyer, working in the RedLine Systems Research Group.

## Other Positions

- 2019 – **Contractor**, *SiFive*, San Mateo, CA, USA.  
Continuing my work with Murali Vijayaraghavan on verifying RISC-V chips in Coq.
- 2019 **Intern**, *SiFive*, San Mateo, CA, USA.  
Interned at SiFive, working with Murali Vijayaraghavan on verifying RISC-V processors in Coq.
- 2016 **Intern**, *Institute of Automation, Chinese Academy of Sciences*, Beijing, China.  
Interned at the State Key Laboratory of Control and Management of Complex Systems, working on computer vision.

## Research Publications

### Research Papers

1. Reynald Affeldt, Jacques Garrigue, **Xuanrui Qi**, and Kazunari Tanaka. Proving Tree Algorithms for Succinct Data Structures. The 10<sup>th</sup> International Conference on Interactive Theorem Proving (ITP 2019).

#### Theses

1. **Xuanrui (Ray) Qi**. Elephant Tracks II: Practical, Extensible Memory Tracing. Senior Honors Thesis, Tufts University, 2018. Thesis committee: Sam Guyer (chair), Kathleen Fisher.

#### Refereed Talks & Presentations

1. Reynald Affeldt, Jacques Garrigue, **Xuanrui Qi**, and Kazunari Tanaka. Experience Report: Type-Driven Development of Certified Tree Algorithms in Coq. The Coq Workshop 2019.
2. **Xuanrui (Ray) Qi**. From Tactics to Structure Editors for Proofs. Off the Beaten Track 2019 (OBT 2019).
3. **Xuanrui (Ray) Qi**. A Practical and Extensible Framework for Garbage Collection Tracing. SPLASH 2018 Student Research Competition.

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## Teaching Experience

### Teaching Assistant

- Calculus II, Global 30 Program, Spring 2020, Nagoya University
- Calculus I, Global 30 Program, Fall 2019, Nagoya University
- Concurrent Programming (COMP 50CP), Fall 2017 & 2018, Tufts University

### Non-Scientific Courses

- Peer instructor (instructor of record), Spring 2018, Experimental College, Tufts University

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## Awards and Honors

- MEXT Honors Scholarship for Privately-Financed International Students, Government of Japan, 2019-2020
- Programming Language Mentoring Workshop scholarship awardee, ICFP 2017