

Kevin Lui Ph.D.

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Citizenship: USA

EDUCATION

- **University of Washington, Seattle** Seattle, WA
Ph.D. in Mathematics specializing in Computational Number Theory under William Stein June 2019
- **University of Washington, Seattle** Seattle, WA
Masters in Mathematics June 2018
- **University of California, Santa Barbara** Santa Barbara, CA
Bachelors in Mathematics June 2014

EXPERIENCE

- **University of Washington** Seattle, WA
Researcher Sep. 2014 - Jun. 2019
 - **Thesis Overview:** Thesis research centered around creating and implementing algorithms for computing invariants of modular abelian varieties. These are objects of great number theoretic importance. The code was written using the Sagemath Python library. Experiments were done using Jupyter notebooks. Tables of related invariants were computed in parallel and stored in a PostgreSQL database.
 - **Link to thesis:** kevinlui.org/thesis
- **Sagemath Open Source Project** Online
Developer Jun. 2016 - Present
 - **Overview:** Primarily interested in improving the functionality of the modular abelian varieties, elliptic curves, and number field capabilities of Sagemath. Currently trying to merge code used for my thesis into the master branch.
 - **Link to contributions:** kevinlui.org/sage_trac
 - **Joint Math Meeting 2016 mini coding spring:** Profiled some code to help identify and fix a bug slowing down the formation of elliptic curve isogenies over large finite fields.
 - **Sage days 87:** Attended a workshop on p -adic number functionality in Sagemath. Worked on some elliptic curve tickets and helped get some beginners started on development.
 - **Google Summer of Code 2016:** Improved functionality of modular abelian varieties in Sagemath. Development was done over over Github: github.com/williamstein/sage_modabvar and has been merged into the Sagemath master branch.
- **University of Washington Sage Seminar** Seattle, WA
Organizer Jun. 2019 - Present
 - Mentoring a group of ~ 8 math graduate students towards contributing to the Sagemath open source project.
 - Primarily teaching the Sage development process which involves showing how to build from source, collaborative development via git-trac (trac.sagemath.org), and Sage developer conventions.
 - Secondary role as Linux tech support and bringer of coffee.
- **University of Washington** Seattle, WA
Teaching Assistant/Instructor Sep. 2014 - Present (until Aug. 2019)
 - **Instructor - Linear Algebra:** 5x introductory linear algebra, 1x advanced linear algebra, ~ 50 students. Lectured, created and graded exams, and assigned grades according to departmental guidelines.
 - **Washington Experimental Mathematics Lab Graduate Mentor:** Helped 3 undergraduate students use Python to investigate tilings of the real plane.
 - **Teaching Assistant - Calculus:** Led twice a week quiz section for about 40 calculus students. Graded exams and held office hours.
 - **Grader:** Grader for the upper-division topology class. Graded weekly homework and held office hours.

PROGRAMMING COURSEWORK

All taken as an undergraduate at UC Santa Barbara. Primarily used C++.

- **Graduate:** Logic
- **Upper Division:** Data Structures and Algorithms, Formal Languages and Automata, Introduction to Cryptography, Random Number Generation in Cryptography
- **Lower Division:** Introduction to Programming, Computer Theorem Proving

PROJECTS

- **Caleb:** Automatically fill in bibtex entries using <https://mathscinet.ams.org/mrlookup>

PROGRAMMING SKILLS

- **Proficient:** Python, Sage, Latex, Git
- **Some experience:** PostgreSQL, SQLite, Bash, Zsh, GNU/Linux, C++, vim, MATLAB