

# Kevin Lui Ph.D.

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Citizenship: USA

## EDUCATION

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

## EXPERIENCE

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- **University of Washington** Seattle, WA  
*Researcher* Sep. 2014 — Jun. 2019
  - **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 PostgreSQL databases.
  - **Link to thesis:** [kevinlui.org/pages/thesis](http://kevinlui.org/pages/thesis)
- **Sagemath Open Source Project** Online  
*Contributor* Jun. 2016 — Present
  - **Overview:** Primarily interested in improving the functionality of the modular abelian varieties, elliptic curves, and number field capabilities of Sagemath.
  - **Link to contributions:** [kevinlui.org/pages/code#sagemath](http://kevinlui.org/pages/code#sagemath)
  - **Google Summer of Code 2016:** Improved functionality of modular abelian varieties in Sagemath. Development was done over Github: [github.com/williamstein/sage\\_modabvar](https://github.com/williamstein/sage_modabvar) and has since been merged into the Sagemath master branch.
  - **Sage days 87:** Attended a workshop on  $p$ -adic number functionality in Sagemath. Worked on elliptic curve functionality.
- **University of Washington Sage Seminar** Seattle, WA  
*Organizer* Jun. 2019 — Present
  - **Overview:** Mentoring a group of math graduate students towards contributing to the Sagemath open source project.
  - **Primary role:** Teaching the Sagemath development process which involves building Sagemath, collaborating via Sagemath's git-trac server, and following Sagemath developer conventions.
  - **Secondary role:** Bringer of coffee and Linux tech support.
  - **Success:** About 6 attendees have made their first open source code contribution.

## PROGRAMMING COURSEWORK

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

- **Graduate:** Logic
- **Undergraduate:** Data Structures and Algorithms, Formal Languages and Automata, Cryptography, Random Number Generation, Computer Theorem Proving

## PROJECTS

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- **Links:** <https://kevinlui.org/pages/code/>
- **caleb:** Python package for parsing tex files and automatically retrieving and appending missing bibtex entries using either the [https://www.crossref.org/ API](https://www.crossref.org/API) or <https://mathscinet.ams.org/mrlookup>
- **Sagemath – isomorphism testing:** Implemented isomorphism testing of modular abelian varieties into the Sagemath Python library. Currently in the process of being merged.

## PROGRAMMING SKILLS

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- **Proficient:** Python, Sagemath, Latex, Git
- **Prior experience:** PostgreSQL, SQLite, Bash, GNU/Linux, C++, vim, MATLAB/Octave