

# Kevin Lui Ph.D.

🌐: kevinlui.org

📖: Seattle, WA

✉: kevinywlui@gmail.com

🔗: github.com/kevinywlui

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/sage\\_trac](http://kevinlui.org/sage_trac)
  - **Joint Math Meeting 2016 mini coding sprint:** Profiled 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 elliptic curve functionality.
  - **Google Summer of Code 2016:** Improved functionality of modular abelian varieties in Sagemath. Development was done over over Github: [github.com/williamstein/sage\\_modabvar](https://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 ~ 6 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](http://trac.sagemath.org)), and Sage developer conventions.
  - Secondary role as Linux tech support and bringer of coffee.

## PROJECTS

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- **Links:** [kevinlui.org/projects](http://kevinlui.org/projects)
- **caleb:** Python package for parsing tex files and automatically retrieve missing bibtex entries using the <https://www.crossref.org/API>.
- **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
- **Some experience:** PostgreSQL, SQLite, Bash, GNU/Linux, C++, vim, MATLAB/Octave