Kevin Lui Ph.D.

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: https://kevinlui.org/pages/code
: Seattle, WA

Technical Skills

- Python, Git, SQL, Bash, C++, MATLAB, Cython

Select Personal Projects

- **langclass**: A model for determining the programming language from its source code. Model uses feature hashing of character-level 2-grams followed by a gradient boosting tree classifier. Live-version deployed on AWS in a Docker container running Flask/Waitress. See http://langclass.kevinlui.org.
- **caleb**: Python package that helps with Latex citation by automatically retrieving bibliographic information from publicly available online sources. Used travis for CI, pytest for testing, and poetry for dependency management. See https://github.com/kevinywlui/caleb
- **zlong_alert.zsh**: Zsh plugin for alerting you upon the completion of a long-running command. See https://github.com/kevinywlui/zlong_alert.zsh

Applied Coursework

- **Instructor/TA/Grader**: Linear Algebra, Operation Research, Calculus
- **Graduate**: Logic in CS, Game Theory
- **Undergraduate**: Data Structures and Algorithms, Cryptography, Computer Theorem Proving, Probability, Statistics

Experience

- **University of Washington** — Seattle, WA
  Researcher in Computational Number Theory — *Sep. 2014 — Jun. 2019*
  - **Overview**: Thesis research centered around creating and implementing algorithms in number theory. Created polynomial-time algorithms for computing invariant where existing methods where computationally infeasible or non-existent.
  - **Technical skills used**: Implemented algorithms using thousands of lines of Python. Invariants were computed in parallel on a 24-core server and stored in a PostgreSQL database.
  - **Link to thesis**: https://kevinlui.org/pages/thesis
- **Sagemath Open Source Project** — Online
  Volunteer Developer — *Jun. 2016 — Present*
  - **Overview**: Active contributor and user of Sagemath which is a Python mathematics package, similar to scipy, suitable for research-level number theory computations. See https://www.sagemath.org/
  - **Contribution stats**: Authored 25 tickets, 19 of which has been accepted. Reviewed 10 tickets. Thousands of Python lines added.
  - **UW Sagemath Seminar**: Organized a seminar that helped 6 math graduate students make their first open-source contribution!
  - **Link to code contributions and code reviews**: https://kevinlui.org/pages/code#sagemath
- **Google Summer of Code - Sagemath** — Online
  Student Developer — *Summer 2016*
  - **Overview**: Implemented number theory algorithms in Python to help close feature gap between Sagemath and its closed-source competitor MAGMA.
  - **Outcome**: This code has been merged into the master branch https://trac.sagemath.org/ticket/21496 and is the foundation for my Ph.D. thesis work.
- **UC Santa Barbara** — Santa Barbara, CA
  Undergraduate Summer Researcher — *Summer 2012*
  - **Overview**: Derived a parametric model for determining a consensus given a group of experts' rankings on a set of alternatives.
  - **Role**: Wrote MATLAB code to solve the LP problem derived in the paper. Worked closely with faculty mentor to develop the model.
  - **Outcome**: Published: https://www.sciencedirect.com/science/article/pii/S0165011413003308

Education

- **University of Washington, Seattle** — Seattle, WA
  Ph.D. in Mathematics specializing in Computational Number Theory - 3.75 GPA — *June 2019*
- **University of California, Santa Barbara** — Santa Barbara, CA
  Bachelors in Mathematics - 3.8 GPA — *June 2014*