Kelvin Luu

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EDUCATION

University of California, Los Angeles (UCLA) September 2021 – June 2025 (Expected graduation)
Mathematics, B.S.
Specialization in Computing

- 3.82 GPA
- Coursework includes honors linear algebra, honors real and complex analysis, numerical analysis, and systems of ODEs.

Pasadena City College August 2019 – July 2021

- High school concurrent enrollment; 4.0 GPA for 23 credit hours
- Coursework includes discrete math and introductory C++ programming.

WORK EXPERIENCE & RESEARCH

Backend Developer & Research Intern April 2023 – Present
Digital Archaeology Lab, Cotsen Institute of Archaeology, UCLA

- Refactored an existing educational Web app's backend to use Django and developed the API to connect with the frontend using the Django Rest Framework. Comprehensively documented the relationship between database tables and fields, API endpoints, and corresponding frontend elements.
- Developed a database for archaeological excavations using Docker, (Geo)Django and PostGIS/PostgreSQL.
- Applied and compared image segmentation algorithms to automate separating foreground objects from image backgrounds using Numpy. Compiled my work into blog posts.
- Performed data cleaning and prepared data for import with OpenRefine.
- Wrote Python scripts that crawled directories to extract data from filenames and batch convert file formats to prepare data for deposit in a long-term preservation repository.
- Developed a comprehensive tutorial on QGIS for cultural heritage scholars.

UCLA Geometry Topology REU August 2024 – September 2024
Exploring Patterns in Mathematics Faculty Hiring with Persistent Homology
Mentors: Mason Porter, Sarah Tymochko, and Sidhanth Raman.

- Over 6 weeks and in a team of 3, learned the conceptual basis for persistent homology (PH) and applied PH algorithms (e.g. Ripser) and software packages (e.g. scikit-tda) to analyze math-faculty hiring trends.
- Constructed a data set by querying the Mathematics Genealogy Project API using the Python requests library.
- Developed custom visualization code with NetworkX and Matplotlib to identify patterns in a faculty-hiring network and to understand the results of our TDA analysis.
- Wrote a final report detailing our methodology and results and gave a 30 minute final presentation on the project. Gave a 10 minute contributed paper talk at the 2025 Joint Mathematics Meetings.

SKILLS

- Proficient in Python (including Numpy, Pandas, Django and other packages).
- Proficient in LaTeX typesetting.
- Proficient in QGIS.
- Proficient in Microsoft Excel.
- Familiar with using Git and Docker.
- Basic familiarity with Javascript, SQL (PostgreSQL, MariaDB, SQLite), C++.