Erik Luu

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Education

California Polytechnic State University, San Luis Obispo
M.S. Computer Science, *June 2024 (expected) GPA 3.8*
B.S. Computer Science, *June 2023*

Skills

Languages: Python, TypeScript/JavaScript, C, C++, Java, SQL, R
Libraries: PyTorch, NodeJS, SciKit-Learn, Pandas, SciPy, Spark, React, MongoDB

Experience

Cylerian LLC // Software Engineering Intern *(Full Stack)* *Summer 2022*

- Architected and implemented a marketplace data processing plugin for Cylerian's security-focused platform.
- Analyzed clients' Google Cloud projects' user and logging activity for general activity and anomaly detection with interactive dashboards, reports, and graphs by integrating relevant GCP APIs and services.
- Authored detailed documentation for unfamiliar codebases with minimal prior documentation.

Technologies: NodeJS, Google Cloud Platform, AWS, Terraform

Noyce School of Applied Computing // Machine Learning Engineer *(Computer Vision)* *Spring 2022*

- Developed a convolutional neural network (CNN) in PyTorch to assess wildfire damage from aerial imagery.
- Applied image transforms to augment training data with rotations, zooms, and horizontal flips.
- Implemented a Bayesian optimization search technique to evaluate rates, batch sizes, and layer widths.

Technologies: PyTorch, SciKit, QGIS

Noyce School of Applied Computing // SWE, Data Engineer, Team Manager *Fall 2021 - Winter 2022*

- Headed a team to structure and index national and California state search and rescue forms.
- Built a platform using NodeJS to organize records and enable keyword searches.

Technologies: Pandas, NodeJS, MongoDB

Projects

LociNet // Graduate Thesis *(Machine Learning + Software Engineering)* *Summer 2023 - Present*

- Fine-tuning LLMs (GPT, BERT, Llama2) with academic databases (Semantic Scholar) and user-generated content to facilitate engagement with models trained as personal mentors providing organization and guidance; API Interface.
- Employing ML techniques including embeddings, dimensionality reduction, and LLMs for semantic organization alongside integrating geometric graph theory to analyze patterns and provide data-driven recommendations.

LociMaps // Graduate Research *(Machine Learning + Software Engineering)* *Winter 2023 - Present*

- Developing a "pirate" map allowing navigation and reasoning upon large knowledge bases via immersive interfaces by integrated concepts from cognitive neuroscience to design visualizations and hierarchy.
- Engineering scalable methods for simulating and evolving (NEAT) physics-based neural automata models in PyTorch.

AccessibleMaps // Undergraduate Thesis *(Backend Software Engineering)* *Winter - Spring 2023*

- Engineered a backend infrastructure in NodeJS to perform route calculations based on sidewalk grade.
- Integrated sidewalk grade analysis to ensure ADA-compliant accessible routes for a range of capabilities.

Quantifying Happiness // Undergraduate Research *(Data Science)* *Winter 2021*

- Conducted an analysis of global happiness and its determinants based on *The World Happiness Report*.
- Employed statistical techniques including a variety of statistical tools and regressions to build a predictive model using factors such as population, social infrastructure, and GDP—achieving an R-squared (R2) value of 0.7.

Awards & Other Experience

Coursework: Operating Systems; Systems Programming; NLP; CV; Mathematical Foundations of ML; Linear Algebra
Central Coast Data Science Fellowship: *Fall 2022 - Spring 2023*

- Implemented an LDA clustering method wrapper for R package 'tidymodels'. Led tutoring sessions for intro students.

NCAA D1 Cross Country and Track Athlete: *2019 - Present*