

# Elvin Li

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## EDUCATION

### University of California - San Diego

San Diego, CA

Mathematics and Computer Science (B.S.) | GPA: 3.91/4.00

Expected: 2026

**Relevant Coursework:** Advanced Data Structures & Algorithm Design, Computer Organization, Machine Learning, AI Algorithms, Stochastic Processes, Real Analysis, Convex Optimization, Linear Algebra, Numerical Analysis, NLP

## RESEARCH ARTICLES

**AAAI'25 AICS (Accepted):** E. Li, Z. Shang, O. Gungor, T. Rosing, "SAFE: Self-Supervised Anomaly Detection Framework for Intrusion Detection". [\[Link\]](#)

**IEEE-CSR'24 Conference (Published):** O. Gungor, E. Li, Z. Shang, Y. Guo, J. Chen, J. Davis, T. Rosing, "Rigorous Evaluation of Machine Learning-Based Intrusion Detection Against Adversarial Attacks" [\[Link\]](#)

## EXPERIENCE

### Systems Energy and Efficiency Lab at UC San Diego

Oct 2023 – Present

Machine Learning Research Assistant

San Diego, CA

#### SELF-SUPERVISED MACHINE LEARNING RESEARCH

- First author of a novel self-supervised machine learning framework in leveraging masked autoencoders for tabular network intrusion data, accepted to AAAI'25 AICS.
- Developed a masked autoencoder to extract latent space features for SOTA anomaly detectors on tabular data, introduced as a new framework for effectively applying image-based autoencoders to tabular datasets.

#### ADVERSARIAL MACHINE LEARNING RESEARCH

- Second author of an IEEE-CSR'24 publication on the potency of various adversarial machine learning algorithms.
- Designed machine learning, neural network, and time-series classifiers with up to 99% accuracy/f1-score for threat detection with PyTorch, benchmarking efficiency and creating a network intrusion model database.
- Applied linear algebra techniques (PCA, t-SNE) and conducted statistical analysis to augment data collation, effectively reducing dimensionality and training time whilst maintaining data integrity.

### Scripps Institution of Oceanography

Sep 2023 – Jun 2024

Natural Language Processing Research Assistant

San Diego, CA

- Implemented statistical learning models (KNN, XGBoost, etc.) and fine-tuned large language models (BERT, GPT) on climate corpora, creating climate topic classifiers for regional analysis of prevalent climate issues.
- Employed In-context learning (ICL) techniques to augment output generation for LLMs, fostering consistent classification abilities given zero-shot, one-shot, and few-shot examples.

## PROJECTS

### Intelligent Travel Planner | Python, Flask, HTML/CSS, OpenAI, Selenium

- Led a team of 5 developers to engineer a full-stack intelligent chatbot application with real-time flight finding, hotel and restaurant locating, and personalized activity recommendation capabilities.
- Leveraged LangChain with OpenAI's GPT-3.5 API, enabling seamless natural language conversations.

### Bayesian Optimizer | PyTorch, SciPy, NumPy

- Developing a Python library for mathematical optimization tasks, specifically derivative-free methods to maximize/minimize black-box functions such as machine learning hyperparameter tuning.
- Leverages Bayesian methods, stochastic approaches, and numerical techniques to estimate objective functions and sample datapoints efficiently

## ACTIVITIES

### Triton NeuroTech | Machine Learning Team

Nov 2023 - Mar 2024

- Developed an LSTM with 90% accuracy for the Neural Prosthetics Group, effectively leveraging EMG technology to translate muscle signals into robotic movements for prosthetic limbs

## TECHNICAL SKILLS

**Languages:** Python, C/C++, Java, Assembly (ARM), SQL, HTML/CSS, LaTeX

**Machine Learning:** PyTorch, TensorFlow/Keras, Scikit-Learn, Pandas, NumPy, Matplotlib, OpenCV, HuggingFace

**Developer Frameworks:** Flask, Django, SQLite, SQLAlchemy

**Developer Tools:** Git, Jupyter Notebook, Visual Studio Code, Vim, Kubernetes, Docker