Erik Nguyen

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Education

University of California, San Diego — La Jolla, CA
M.S. in Computer Science — *Sep 2024 - Present*

- **GPA: 4.00/4.00**
- ML Learning Algorithms, Recommender Systems, Probabilistic Reason & Learning, Medical Image Computing, Algorithm Design, AI for Music, Networked Services

California State University, Fullerton — Fullerton, CA
B.S. in Computer Science — *Aug 2022 - Aug 2024*

Skills

Programming: Python, Java, C/C++, Go, JavaScript, Lua, HTML, LaTeX
Tools & Applications: Android Studio, VS Code, Git/GitHub, Docker, SQLite, PostgreSQL, GitHub Copilot
Frameworks & Libraries: PyTorch, TensorFlow, FastAPI, Flask, React, Pandas, NumPy, Scikit-Learn

Experience

Thales Avionics, INC — Irvine, CA
Software Engineer-AI Intern — *Jul 2024 - Oct 2024*

- Led the research and evaluation of a new internal Thales **LLM**, assessing its adoption potential among **30+** current software engineers. Compiled findings into a technical report and delivered **3** presentations to key stakeholders.
- Developed and executed over **150 JUnit** & **Mockito** test cases on the Android platform, ensuring full **JaCoCo** compliance for quality assurance.

CEDDI Lab, California State University, Fullerton (CSUF) — Fullerton, CA
Researcher — *Feb 2024 – Sep 2024*

- Designed and evaluated a fair and transparent facial beauty prediction pipeline using **XGBoost**, **SVR**, and **GNN** models with landmark-based feature engineering and bias mitigation strategy.
- Co-authored a paper on bias-aware ML for facial image analysis, leading the experiments and manuscript writing.

Khoi Turner, INC — San Clemente, CA
Software Engineering Intern — *Aug 2023 - Nov 2023*

- Developed firmware and communication protocols between a **Particle IoT microcontroller** and main controller to enable customer interaction via the **Blynk** web interface for cellular-connected water dispensers.

Projects

Face Traits Project | *Computer Vision Project Lead* — *Oct 2024 – Present*

- Leading the development of an open-source image dataset with detailed facial attribute labels, combining manual annotation, cross-dataset **label transfer**, and **semi-supervised learning** to scale high-quality annotations.
- Built a cloud-hosted image annotation pipeline and currently leading a team of student volunteers, tackling challenges in **domain shift** and **class imbalance** for facial image modeling.

ScholarScope | *AI Agent & Tooling* — *Aug 2025*

- Designed a custom **MCP server** using **FastMCP** to provide **LLMs** with advanced academic research capabilities, including keyword, author, and institution search, citation exploration, and full-text retrieval.
- Implemented a **ReAct Agent** using **LangGraph** that orchestrates MCP tools, enabling dynamic agentic workflows and configurable integration of additional MCP servers.

Bloomscape Japan | *Full Stack AI Web Application* — *Jun 2025*

- Designed an AI-powered cherry blossom full-bloom prediction platform for 100+ Japanese cities, using **React** for the frontend, **FastAPI** for the backend API service, and containerized using **Docker Compose** for cloud deployment.
- Engineered a **LightGBM**-based forecasting model with spatiotemporal feature engineering, automatically retrained via scheduled **cron jobs** to deliver accurate real-time predictions.

Tversky Neural Networks | *Deep Learning Research Implementation* — *Aug 2025*

- Implemented Tversky Similarity and Projection layers in **PyTorch**, translating mathematical formulations from the paper *Tversky Neural Networks: Psychologically Plausible Deep Learning with Differentiable Tversky Similarity*.
- Benchmarked across multiple image classifier backbones (**ResNet**, **EfficientNet**, etc.), replacing standard classifier heads with the Tversky projection layer to evaluate against reported experimental results.

Pintrigue | *Full Stack Web Application* *Jul 2025*

- Developed an Instagram-like social media platform for sharing and exploring geotagged photos via an interactive map using a **FastAPI** backend, **React** frontend, **Docker Compose**, and **PostgreSQL** with a **geohash-based index** for fast proximity queries and map-based filtering.
- Architected a secure authentication system with **JWT access** and **refresh tokens**, supporting seamless session management and token renewal.

TuneStacker | *Native Android Application* *Jan 2023*

- Built a native Android music app from scratch using **Java**, supporting local playback, playlist management, and offline listening.
- Integrated **yt-dlp** to enable users to download and play audio from YouTube or other supported platforms directly within the app.

Publications

Regression Guided Strategy to Automated Facial Beauty Optimization through Image Synthesis
Erik Nguyen *and Spencer Htin*
arXiv preprint arXiv:2501.00811, 2025

Racially Inclusive Approach to Facial Beauty Modeling Using Machine Learning
Erik Nguyen*, Sampson Akwafuo, Doina Bein, and Blessing Ojeme*
Proceedings of the 2024 IEEE International Conference on Bioinformatics and Biomedicine (BIBM), pages 4467–4473. IEEE, 2024

Honors & Awards

Most Innovative Project Of The Year, CSUF ECS Innovation Expo 2024 Competition *Apr 2024*
Summa Cum Laude, Graduated with Honors at California State University, Fullerton *Aug 2024*