Nathaniel Fedida

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EDUCATION

Bachelor of Science in Computer Science - *B.S., Computer Science | Dean's Honor List*

Relevant Courses: Data Structures and Algorithms, Linear Algebra, Discrete Mathematics, Machine Learning, Deep Learning

Certifications: Machine Learning Foundations (Cornell University), Helsinki University Java Programming

Publications: *Fedida, N. Web-Based Eye Tracking for Gaze Analysis: A Study Using WebGazer. California State University, Long Beach, May 2025.*

SKILLS

Data & AI: OpenAI API, CoreML, TensorFlow, scikit-learn, PyTorch, SQL, Pandas; Seaborn, MatPlotLib, Jupyter Notebooks
Dev & Platforms: Python, React, JavaScript, Node.js/Express, Next.js, REST, MongoDB/SQL, Java, PostgreSQL

PROFESSIONAL EXPERIENCE

Research Engineer - *D2 Laboratories*   **August 2024 - May 2025**
Long Beach, CA
- Built a web-based eye-tracking platform **cross-functionally** with researchers and engineers, delivering a scalable research tool
- Engineered an end-to-end data pipeline using **HTML/JavaScript/Python**; Preprocessed data with **pandas and scikit-learn**
- Conducted **30+ user studies** and reduced study costs by **$5K–$15K** by replacing expensive, hardware-dependent eye-tracking workflows with an equally efficient, in-house research platform.

Software Engineer - *Department of Computer Science*   **January 2024 - November 2024**
Long Beach, CA
- Automated the CSULB CS department's academic calendar workflow, replacing a legacy system with a **full-stack web app**, **saving hours** of scheduling work each term.
- Gathered **stakeholder requirements** on department rules and scheduling constraints, communicated tradeoffs with leadership
- Built a rules driven Python calendar engine using **Object Oriented Programming** and data structures; deployed **REST endpoints**

AI Fellow - *Amazon*   **August 2023 - December 2023**
Break Through Tech @UCLA
- Improved e-commerce search relevance by building a query → product relationship classifier; delivered **86%** prediction accuracy, enabling faster product discovery and fewer mismatched results.
- Cut model training time down **25%** through a **Natural Language Processing** pipeline using **PyTorch**
- Built metrics and visualizations with **Matplotlib** and **Seaborn**; **translated results to stakeholders** for evaluation

PROJECTS

Pressure Cooker - *FC Barcelona Hackathon*   **February 2026 - February 2026**
- Spearheaded development of a risk engine using **GenAI** to create tactical insights and identify defense holes
- Processed heavy datasets using **Python, pandas, and NumPy,** packaged data into **GPT models for LLM analyses,** and visualized **150 danger moments** in a **React** dashboard for professional coach review
- Selected as **1 of 12 curated teams** from **3,500 global applicants** to present project in Barcelona

Generative Digital Agents - *Senior Capstone Project*   **Summer 2024 - Spring 2025**
- Built an AI-driven survival simulation in **Unity** with autonomous, **LLM-powered** agents that could perceive and interact with their surroundings. Won **"Best use of AI" award at the CSULB 2025 Senior Expo.**
- Engineered a **FastAPI** service packaging world context for **OpenAPI**, allowing agents to make informed decisions

NYC Botanical Garden Google Competition   **February 2024 - April 2024**
- Trained an image classifier on a **7.8M+** plant/fungi imageset with **ResNet-50**, achieving **96%** classification accuracy.
- Built the **TensorFlow/Keras** training pipeline in Python; scored in the top 30 nationwide for model success

Stack Collab - Hackathon Project   **March 2023 - March 2023**
- Developed a **full-stack Flask web app** with **MySQL** backend for user authentication and **LinkedIn OAuth 2.0**
- Implemented secure **Python-based database schemas** and **login flows**
- Designed **front-end UI/UX** with **HTML/CSS + Figma**; attracted **100+ users** to pre-launch waitlist

LEADERSHIP

CSULB Senior Expo - *Generative Digital Agents*   **May 2025**
- Took home **Best AI Project** award, competing against **200+ students** from all engineering disciplines