Matthew Nhat Phan

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EDUCATION

University of California, Irvine   Irvine, CA
Major in Computer Science, Minor in Innovation and Entrepreneurship, GPA: 3.7   *September 2021 – June 2025*
Relevant Coursework: *Machine Learning, Database Management, Information Retrieval, Full-stack Development, Data Structure and Algorithms, Software Testing and QA, Networks, Operating Systems, Statistics, Linear Algebra*

EXPERIENCE

Algorithm Developer   February 2025 – Present
Boundary Remote Sensing Systems   *Irvine, CA*
- Researched and designed geophysical algorithms to process magnetic anomaly data, specifically aimed at detecting shipwrecks using spatial filtering and background field removal techniques.
- Developed automated *Python* scripts for efficient data processing tasks, including background field removal, anomaly enhancement, and spatial filtering.
- Integrated algorithmic workflows into ArcGIS Pro, streamlining the visualization and interpretation of magnetic anomalies for reclamation and recovery processes.

Machine Learning Researcher   September 2024 – Present
UC Irvine   *Irvine, CA*
- Conducted research under Professor Nadia Ahmed using NASA's PACE satellite data to analytically predict animal migration patterns and their environmental impacts.
- Implementing complex geospatial ETL pipelines in *Python*, processing and integrating large-scale datasets containing over 10,000 GPS animal coordinates with high-resolution PACE-OCI sensor data.

PROJECTS

RL Stocks Trading Agent   September 2024 – December 2024
- Developed an advanced reinforcement learning agent using *Python* libraries and frameworks, including *TensorFlow, StableBaseline3, PyTorch*, and *gym-anytrading*.
- Achieved a 23% increase in portfolio value and a 15% improvement in Sharpe ratio through the implementation of a customized Proximal Policy Optimization (PPO) model.
- Integrated financial sentiment analysis, built a dynamic reward structure, optimized hyperparameters, and validated the model's robustness through walk-forward evaluation across unseen datasets.

Hotspot News Network   January 2025 – February 2025
- Developed a real-time disaster mapping and evacuation route application using *React Native, Firebase*, and *Google Maps API*, providing users with critical safety information during emergencies.
- Optimized performance and reliability by integrating *Convex Vector Search* for rapid information retrieval and employing cloud functions for scalable backend processing.

Fablix Database   March 2024 – June 2024
- Developed a full-stack web application using *Apache Tomcat, Java Servlets, Jakarta Server Pages, MySQL*, and *AWS*, with secure user authentication, session management, and dynamic content generation.
- Implemented a responsive front-end interface with *HTML, CSS*, and *JS* featuring movie searching with fuzzy matching, sorting, and a shopping cart system.
- Enhanced application performance and scalability through *JDBC* Connection Pooling, *MySQL* Master-Slave replication, load balancing, *Kubernetes*, and *Docker*.

TECHNICAL SKILLS

Programming Languages: Python, C, C++, Java, JavaScript, TypeScript, Assembly, R
Web Development: React, Angular, HTML, CSS, Node.js, jQuery, Apache Tomcat, Flask
Databases: MySQL, Google Cloud DB, Firebase DB
AI/ML Frameworks: TensorFlow, PyTorch
DevOps & Cloud: Docker, Kubernetes, AWS Lambda, Firebase
Developer Tools: Git, VS Code, Eclipse, Figma, JUnit