Phong Thanh Lu

+1 669-237-5040 | luthanhphong256@gmail.com | linkedin.com/in/phongthanhlu/ | https://github.com/PhongThanhLu

EDUCATION

University of South Florida   Tampa, Florida
Bachelor of Computer Science   *Expected 2027*
- Award: Dean's List (2023, 2024), Green and Gold Presidential Scholarship
- Coursework: : Machine Learning Specialization, Deep Learning Specialization, Data Structure and Algorithm, Object-oriented programming (OOP), Computer Organization, Program Design

EXPERIENCE

AI - Machine Learning Internship   Jan. 2025 – Present
FragsAI   *Tampa, FL*
- Engineered a scalable video processing pipeline with Python, NumPy, and Pandas, applying adaptive downscaling and chunk-wise analysis, improving memory efficiency by 45% and reducing processing time.
- Optimized a prompt-based clip extraction model with TensorFlow and Roboflow, reducing processing time by 20% and improving accuracy by 25% with enhanced detection, segmentation, and NLP parsing.
- Implemented RESTful API endpoints for the clip extraction system, improving frontend integration speed and accelerating deployment by 30% for seamless product delivery.

Research Experience Undergraduates   Aug. 2024 – Present
USF Robotics Perception and Action Lab   *Tampa, FL*
- Enhanced a video chunking API using FastAPI, Pandas, OpenCV, and NumPy to automate splitting large videos into clips from Excel timeline data, achieving 99% accuracy and reducing processing time by 40%.
- Developed a backend feature with Flask to auto-detect the first clap using signal processing, achieving 90% accuracy and reducing synchronization time by 70% for precise alignment of video and Empatica sensor data.
- Built a robust backend function with Node.js and Express.js to fetch and handle data from the Fitbit API endpoint, improving data integration efficiency and ensuring reliable downstream processing.

PROJECTS

Mentis.AI | *Node.js, Express.js, React.js, PostgreSQL, AWS, Google Auth, JWT, Docker, Spotify APIs*
- Collaborated in a team of 4 to build an AI-powered mental health platform for emotion tracking, self-reflection, and wellness support.
- Built an AI-powered reward and engagement feature that increased daily user participation by 60%, providing personalized reflections, habit suggestions, and milestone-based digital rewards to promote mental well-being.
- Implemented AI-driven emotional insights that increased user reflection activity by 50%, analyzing mood patterns and providing self-care recommendations with personalized music via Spotify API.

AI-Driven Smart Commerce Platform | *Node.js, PostgreSQL, React, Redis, APIs*
- Developed a full-stack AI-powered e-commerce platform, integrating real-time recommendations, chatbot support, and AI-driven search, boosting user engagement by 40%.
- Designed a scalable backend with Node.js, PostgreSQL, and Redis, optimizing query performance and API efficiency, handling 100+ concurrent users.
- Implemented AI-powered search and personalized recommendations, leveraging Google Vision API and OpenAI embeddings for enhanced product discovery.

Hands-On Robotics: Developing an Arduino Navigation System | *Arduino, Tinkercad, 3-D printing*
- Led a cross-functional team of five, managing hardware integration, software development, 3D printing, and testing to deliver a project aligned with product goals.
- Tested and optimized the obstacle-avoiding robot, refining sensor detection, motor control, and alert systems with sound and LED indicators, achieving 95% obstacle avoidance accuracy.
- Contributed to a 50% reduction in production costs by conducting feature analysis and recommending strategic improvements through technical assessments and project evaluations.

TECHNICAL SKILLS

Languages: Python, JavaScript, C/C++, SQL (PostgreSQL), HTML/CSS, R
Frameworks/Libraries: React, Node.js, Flask, FastAPI, OpenCV, NumPy, Pandas, Scikit-Learn, TensorFlow, PyTorch, Matplotlib, Plotly
Developer Tools: Git, GitHub, Docker, RESTful APIs, Redis, TravisCI, Google Cloud Platform (GCP), VS Code, PyCharm, IntelliJ, Eclipse
Backend & Databases: PostgreSQL, MongoDB, Redis, API Data Caching, Local Storage