Minh Tran

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Education

Grand Valley State University — Allendale, MI

Bachelor of Science in Computer Science; Minor in Mathematics; ***GPA: 3.954/4.0*** — *Aug. 2021 – Dec. 2025*

- Designated as a GVSU Undergraduate Research Scholar
- Dean's List all semesters; International Merit Award and GVSU International Scholarship recipient
- Relevant Coursework: Applied Machine Learning, Applied Artificial Intelligence, Database Systems, Data Structures & Algorithms

Research Experience

Computer Vision Research Assistant — Allendale, MI

Dr. Denton Bobeldyk & Dr. Jonathan P. Leidig – Coral Image Classification — *Fall 2024 – Winter 2025*

- Developed hybrid CNN-ViT deep learning framework achieving **82.11% accuracy on 27-class dataset** for coral species classification in underwater environments
- Conducted systematic evaluation of four state-of-the-art underwater image enhancement methods (LANet, U-shape Transformer, CLIP-UIE, Phaseformer) as preprocessing pipelines, identifying CLIP-UIE as optimal
- Implemented complete data pipeline including dataset preparation, augmentation, train-test splits, and model evaluation using accuracy, F1-score, and confusion matrices
- Co-first author on manuscript under review; presented findings at GVSU Student Scholars Day 2025 and GVSU Innovation Day 2025

Machine Learning Research Assistant — Allendale, MI

Dr. Rahat Ibn Rafiq – Document Understanding via Model Compression — *Winter 2025 – Present*

- Led systematic evaluation of compression techniques (knowledge distillation, pruning, quantization) for LayoutLMv3 models on educational transcript information extraction
- Achieved **97.7% of teacher model performance** with 22.6% size reduction through knowledge distillation and **2.44× throughput improvement** via structured attention head pruning
- Managed complete ML workflow: dataset annotation and curation, model training and fine-tuning, evaluation metrics (F1, precision, recall), and reproducibility documentation
- First author on manuscript under review; currently developing production deployment system

Professional Experience

Blue Nucleus – GVSU Applied Computing Institute — Allendale, MI

Software Engineer — *Mar. 2024 – Dec. 2024*

- Developed an AI-powered summary microservice for Eli Review using Flask, Cohere, and Mistral, integrating AWS SQS for asynchronous job processing and implementing deduplication logic to generate scalable, high-quality summaries of large user-review datasets
- Built RESTful API endpoints and streamlined data flows between the centralized database, LLM pipelines, and SQS workers, significantly improving feedback-analysis throughput and system reliability
- Engineered a full CI/CD automation framework for the Laker Mobile iOS app using Fastlane, replacing manual release workflows with reproducible pipelines for code signing, certificate management, and TestFlight distribution
- Implemented secure secrets management and produced end-to-end operational documentation, ensuring maintainability and long-term continuity for future development teams

GVSU Information Technology — Allendale, MI

IT Services Technician — *Jan. 2022 – Apr. 2024*

- Provided technical support to faculty, staff, and students, resolving complex technology issues and implementing tailored solutions for diverse academic needs

Publications

M. Tran and X. Cao, "A Distributed Edge Computing Prototype Using Raspberry PIs," 2025 IEEE World AI IoT Congress (AIIoT), Seattle, WA, USA, 2025, pp. 0662-0668, doi: 10.1109/AIIoT65859.2025.11105362.

Technical Projects

MindMeter AI | *FastAPI, PyTorch, OpenAI API, Pydantic AI, PostgreSQL* (Contract) 2025

- Developed AI-powered assessment platform with real-time speech-to-text transcription and automated question generation from rubrics, providing instant feedback and detailed analytics
- Implemented FastAPI REST endpoints for model serving and integrated OpenAI models for natural language processing

ISATS Carbon Credit Verification API | *Fastify, PostgreSQL, DiceDB, Docker, Prometheus* (Contract) 2025

- Architected and delivered an enterprise-grade carbon credit verification platform with IPCC AR6-compliant emission-calculation engines (fuel combustion, electricity consumption, wastewater treatment), enabling organizations to track, calculate, and verify Scope 1–3 greenhouse gas emissions
- Developed secure RESTful APIs, role-based access control, real-time monitoring dashboards, and automated verification workflows to support regulatory compliance and streamline sustainability reporting

Pama Media Marketing Website | *Strapi CMS, GraphQL, PostgreSQL* (Contract) 2023 – 2024

- Developed comprehensive marketing website with performance-first architecture and SEO optimization
- Implemented internationalization for multi-language support and built GraphQL API layer for efficient data fetching and content synchronization pipelines

Thien Khoi Real Estate Database and Reporting | *SQL, SQL Server* (Contract) 2023

- Optimized database performance and developed custom SQL queries for **10,000+ real estate agents** across Vietnam
- Created automated stored procedures producing analytical reports and built secure REST API platform enabling partner organizations to retrieve real estate data through authenticated endpoints

Real Estate Data Integration API | *Fastify, REST API, ClickHouse* (Contract) 2023

- Built a secure, fully documented API platform for partner organizations to access real estate listings and property data through authenticated, standardized endpoints with robust query, filtering, pagination, and aggregation capabilities
- Implemented strong security controls and integration guidelines to ensure reliable, controlled, and scalable third-party data access

Technical Skills

Python Expertise: PyTorch, TensorFlow, Scikit-learn, OpenCV, NumPy, Pandas

Deep Learning: CNNs (ResNet, EfficientNet), Vision Transformers (ViT), Object Detection (YOLO), Image Segmentation

ML Operations: Dataset preparation & augmentation, Model training & fine-tuning, Evaluation metrics (Accuracy, F1, IoU)

Frameworks & APIs: FastAPI, Flask, REST API development, Model serving & deployment

Tools & Platforms: Git, Docker, nginx

Databases: PostgreSQL, MySQL, SQL Server, ClickHouse, MongoDB