VIVIAN NGUYEN

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EDUCATION

Georgia Institute of Technology
M.S. in Computer Science — **Graduation Date:** May 2027

Southern New Hampshire University
B.S. in Computer Science | GPA: 4.0 — **Graduation Date:** Dec 2024

The University of Texas at Arlington
B.S. in Biomedical Engineering | GPA: 4.0 — **Graduation Date**: May 2023

SKILLS

- **Programming & Scripting:** Python, Java, C++, JavaScript, TypeScript, SQL, MATLAB, Bash
- **Web & Full-Stack Development**: MERN Stack (MongoDB, Express, React, Node.js), MEAN Stack (MongoDB, Express, Angular, Node.js), RESTful APIs, GraphQL
- **Cloud & DevOps**: AWS (Lambda, S3, DynamoDB, EC2), Docker, Kubernetes, Git, GitHub, CI/CD Pipelines
- **AI/ML & Data Science:** TensorFlow, PyTorch, Hugging Face Transformers, Scikit-learn, OpenCV, Deep Learning (CNN, RNN, Transformers, Reinforcement Learning), NLP, Data Preprocessing, Transfer Learning, Model Deployment
- **Software Engineering Concepts:** Object-Oriented Programming (OOP), Data Structures & Algorithms, Design Patterns, Software Development Life Cycle (SDLC), Agile & Scrum, Version Control (Git)
- **Systems & Tools:** Linux/Unix, Jupyter Notebook, Postman, MongoDB Compass, MySQL, NoSQL Databases
- **Specialized Applications:** OpenGL (2D/3D graphics), Embedded Systems Integration, Signal Processing, Brain-Computer Interfaces (BCI)

PROJECT

EEG Signal Processing with 1D CNN
- Simulated EEG signals (14 channels, 128 time steps) for binary classification (normal vs epileptic) using a custom 1D CNN architecture.
- Implemented model training, signal generation, and performance evaluation in PyTorch, achieving high accuracy within 5 epochs.
- Outlined pipeline generalization to real EEG datasets (e.g., CHB-MIT, TUH) and proposed advanced architectures like LSTM or Transformers.

Stress Detection via Emotion Classification
- Built a real-time text-based stress level detector using a pretrained BERT emotion classification model (DistilBERT) on Hugging Face.
- Created a conversational check-in tool to identify stress-indicative emotions (e.g., fear, sadness, anger) and simulate user wellness feedback.
- Proposed multimodal extensions combining voice, HRV, and EDA signals using DEAP or WESAD datasets for future deployment in mental health tools.

Medical Chatbot for Symptom Triage
- Implemented a hybrid rule-based + LLM chatbot for symptom triage using Hugging Face's GPT-2 model and custom logic for common health scenarios.
- Designed conversation flow to prioritize deterministic rules while falling back to generative responses for general health queries.
- Outlined extensions for real-world deployment including clinical API integration, LangChain-based routing, and speech I/O capabilities.

Pirate Intelligent Agent Game Development
- Designed and implemented a deep Q-learning algorithm to navigate an 8x8 maze, using reinforcement learning techniques to optimize decision-making processes.
- Built and trained a neural network with TensorFlow and Keras, demonstrating strong skills in machine learning and algorithm development.
- Increased the agent's efficiency in navigating the maze by 20% through experience replay and optimized Q-learning strategies.

JOB EXPERIENCE

Artificial Intelligence Mastery: Complete AI Bootcamp 2025
Intensive 16-week AI Training Program — Mar 2025– Jul 2025
- Completed a comprehensive AI bootcamp covering Python programming, machine learning, deep learning, NLP, and AI frameworks (TensorFlow, PyTorch, Hugging Face).
- Gained hands-on experience building, training, and deploying AI models for real-world applications including image recognition, NLP tasks, and time-series forecasting.
- Developed skills in data preprocessing, transfer learning, containerization with Docker, and deployment of ML models via scalable APIs.
- Mastered full ML lifecycle management: model training, evaluation, monitoring, drift detection, and retraining pipelines.
- Applied statistical and mathematical foundations to improve model performance and robustness.
- Worked on practical AI projects simulating industry scenarios to prepare for AI engineering roles.

Product Development Engineer I
Resolution Medical — Jun 2023– Present
- Performed system-level design verification and testing for implantable neurostimulation and BCI devices, including hydraulic, mechanical fatigue, and accelerated aging tests aligned with FDA/ISO compliance.
- Developed and executed traceability matrices linking user needs, system requirements, and design verification protocols to ensure design outputs met inputs.
- Designed custom test fixtures and prototypes simulating biological environments; applied system thinking to integrate electrical, mechanical, and software interfaces.
- Authored and maintained design history files, risk control documentation, and engineering reports in collaboration with regulatory and QA teams.
- Contributed to cross-functional technical decisions including tolerance analysis, material selection, supplier evaluation, and DFM analysis.
- Supported preclinical animal studies with real-time engineering support, using feedback to refine product usability and risk mitigation strategies.
- Created detailed system architecture drawings and performed subsystem integration to ensure functional reliability under surgical use conditions.