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Hieu Minh Nguyen

EDUCATION

Tampa, Fl **University of South Florida** Expected May **2026**

- Bachelor's / Master's Pathways Degree in Computer Science. GPA: 3.8/4.

SKILLS

- **Programming Language**: Python, C, C++, C#, Java, JavaScript/TypeScript, HTML5, CSS, SQL.
- **Technologies and Tools**: MySQL, PostgreSQL, Git/GitHub, GitHub Action, AWS, Google Cloud, Azure, Docker.
- **Machine Learning and AI**: LangChain, Numpy, Pandas, Matplotlib, Seaborn, scikit-learn, PyTorch, TensorFlow, OpenAI, Keras, transformers, Streamlit, Retrieval Augmented Generation.
- **Web development Technologies**: Node.js, Vite.js, Express.js, React.js, FastAPI, Bootstrap, React Native, Flask, Next.js, Tailwind CSS.

PROFESSIONAL EXPERIENCE

Research Assistant **University of South Florida** May 2024 – Present

Publication: "Global is Good, Local is Bad?": Understanding brand Bias in LLMs.

- Conducted comprehensive research on bias across many categories, such as age or gender, within Large Language Model (LLM).
- Built a specialized library in **Python** for systematic evaluation of **100,000** datasets in LLMs, significantly reducing manual effort.
- Collaborated with a team of researchers on studies focusing on mitigating bias in human health records using machine learning.
- Partnered with USF students and faculty to develop an AI personal assistant for learning paths and school course curricula.
- Researched techniques to optimize LLM code generation for **complex data structures, algorithms**, competitive programming.

AI/ML Software Engineer (Intern) **Resilience, Inc.** Sep – Dec 2023

Technologies: AWS, React Native, Flask, Synk, Figma, Linux, Python

- Engineered a mindfulness app, resulting in enhanced emotional self-awareness across diverse user demographics.
- Executed design prototypes using Figma, further developing **5+** frontend features via React Native.
- Implemented a machine learning API endpoint with Flask (Python) on AWS EC2, leading to an **80%** reduction in response latency.
- Implemented proactive security measures through **penetration testing methodologies** to fortify web applications and network infrastructure, resulting in a **50%** reduction in potential security breaches and associated risks.
- Proactively secured the app by employing Snyk, addressing **100%** of identified code vulnerabilities.
- Coordinated with cross-functional teams, include engineering and design for smooth production releases.

AI/ML Developer (Intern) **Resilience, Inc.** June – Aug 2023

Technologies: Keras, Numpy, Pandas, sklearn, matplotlib, TensorFlow, Python

- Researched and selected **deep learning/machine learning** models, including CNN, RNN, XGBoost, and MLP, for effectively user emotions prediction based on through **benchmarking** and rigorous testing.
- Built a CNN model using Keras **(**TensorFlow**)** from scratch, achieving a **72%** emotion classification accuracy.
- Streamlined machine learning processes by creating a pipeline for automated data handling and model training.
- Finetuned Whisper by **multiprocessing** through **parallelization** for CPUs to speed up translation time by **5.9x**.
- Guided a team of five interns by **writing a comprehensive documentation** and **hosting weekly feedback sessions**, ensuring rapid tool mastery, addressing queries, code reviewing and bolstering overall progress and team synergy.

PROJECTS

Talk To Listen (talktolisten.com) | FastAPI, Python, React Native, JavaScript, REST APIs, SQL, Firebase, Redux, CI/CD, AWS, Azure

- Built a mobile AI chat app for seamless interaction with unique AI characters, each featuring distinct voices, personalities, stories.
- Grew the app to **1000+** active users and secured **$3000** in sponsorship from Microsoft, OpenAI, and AWS Startup Programs.
- Created **scalable distributed** system architecture using Azure Application Gateway, Azure Load Balancer, Azure Virtual Machines.
- Constructed a RESTful APIs server with FastAPI (Python) capable of handling 30+ APIs, and 3 machine learning endpoints, deployed on AWS EC2 using Docker, and integrated with GitHub Actions for automated CI/CD.
- Created and published an **open-source** dataset of **3M** tokens (nearly **2000** downloads monthly) and fine-tuned an LLM model using supervised learning, quantization method (QLoRA), and Pytorch, achieving an accuracy of **85%**.
- Continuously monitored model performance, **retrained** with new data, and state-of-the-art open-source model.
- Developed, tested, and debugged the app using Xcode for **iOS** Simulation, and Android Emulator for **Android** Simulation.

- Managed all stages from **Figma**-based design, **front-end**, database, API design, to **iOS/Android** deployment and **back-end**, encompassing more than **3000** lines of code.
- Designed a comprehensive database schema, featuring **20+** schemas and integrating **Azure Database PostgreSQL**.
- Devised a hands-free voice input feature with a voice detection algorithm and **WebSocket** connection.
- Integrated **Redux** with React and Axios, to seamlessly manage API data fetching and state updates.
- Configured **Azure Virtual Network** to securely connect virtual machines, enhancing the security and reliability.
- Monitored system health using **Azure Portal**, employing **monitoring tools** to track performance, uptime, and resource utilization.
- Deployed a machine learning model on Runpod's **serverless** platform via **Docker**, reducing cost and enhancing dynamic scalability by **82%,** and lowering the latency to **75%.**
- Applied **Test-Driven Development (TDD)** to create automated test scripts for the back pressure feature.
- Created and optimized a **voice detection algorithm** to enable real-time speech and response.
- Applied **NGINX** as a web server and reverse proxy, **ensuring efficient traffic management, load balancing, security**.
- Utilized **APIs best practices in client-server protocols**, including appropriate HTTP methods, CRUD operations, **Firebase** for authentication, to design effective and secure communication between clients and servers.
- Enforced **Redis** caching to improve database performance, resulting in a 30% reduction in query response time.
- Utilized **SSL/TLS** protocols to establish secure connections, ensuring confidentiality of sensitive data during transmission.
- Configured **AWS** Simple Storage Service (**S3**) for secure and scalable storage of image assets.
- Utilized **best practices in product lifecycle management**, including clear requirements definition, application frameworks, version control, through testing, resulting in **increased productivity across all phrases**.

JobsDreamer (jobsdreamer.com) | Scrapy, Selenium, Python, Google Gemini 1M API, GPT4o, Llama3, Proxy, Azure, AWS

- Launched a platform that assists **hundreds** of students in finding internships, automatically sending them emails with newly all posted relevant internship opportunities on the internet within the last 24 hours.
- Established a comprehensive job data processing pipeline utilizing **latest** AI tools, AWS EventBridge, AWS Step Functions, AWS Fargate, and AWS Lambda to **automate** daily web scraping, data preprocessing, and email notifications.
- Integrated a **GPT-4o** and **Google Gemini** based categorizing and reviewing system to automatically classify and validate job data, ensuring high accuracy and relevance of categorized data.
- Utilized **residential proxy servers to manage IP rotation** and avoid detection, enhancing the anonymity of the scraping process.
- Automated user notifications by integrating **DynamoDB** and an **email** service to send processed job data directly to user emails.
- Deployed containerized **microservices** for web scraping across multiple job sites, leveraging Python, Scrapy, and Selenium.
- Automated a scalable and efficient Python pipeline with **advanced LLMs** to handle **1000+** of new **raw data** every day.
- Implemented **advanced cookie** handling mechanisms to maintain session persistence and accurately simulate user interactions on target job sites.
- **Implemented rigorous data validation checks** throughout the pipeline to maintain data integrity and consistency.
- Planned a scalable infrastructure with containers in an **AWS** VPC setup, allowing for isolated operations within private subnets.
- Drew clear and detailed diagrams to visualize the architecture and workflow of the data pipeline.
- Set up **CI/CD** pipelines using GitHub Actions and AWS ECR, automating the build, test, and deployment processes.

BullBot (bullbot.tech) | Flask, AWS, Vite.js, Express.js, Node.js, Pytorch, Langchain, Python

- Pioneered a full stack chatbot web app answering queries across **1500+** Uni of South Florida websites with natural language recognition, providing precise sources for user clarity, especially for parents less adept at online searches.
- Developed a **Retrieval Augmented Generation (RAG) system**, integrating Vector Store for **efficient data management**, significantly **optimizing** data weight, and expediting database information retrieval processes.
- Maintained a **scalable and fault-tolerant data storage solution**, resulting in a **95% reduction** in storage costs.
- Employed **Depth First Search Algorithm** with Beautiful Soup for comprehensive web link scraping.
- Analyzed and filtered **5000+ raw** data files to filter **18%** unnecessary content, improving the quality of the data.
- Wrote **Python scripts** to automate data extraction, processing, and ingestion, increasing efficiency by **40%**.
- Orchestrated a **microservice** architecture leveraging Vite.js, Express.js/**Node.js**, and various AWS services such as **AWS EC2, AWS API Gateway, AWS Lambda**, achieving a significant server workload reduction.
- Utilized opensource **Hugging Face models** and quantized Meta Llama2 with **PyTorch, LoRA, PEFT**, to reduce model's weight and speed up model training, resulting in an **90%** cost-saving on deployment.

InCollege | Python, Scrum (Agile), Object Oriented Programming, Git/GitHub, pytest.

- Worked with an **Agile/Scrum** team to develop a college networking app, leveraging Agile methodologies to streamline development, ensure adaptability to evolving requirements and meet project milestones efficiently.
- Implemented a modular and object-oriented architecture facilitating independent development, reusability, scalability, and efficient collaboration among team members.

- Conducted **15+ unit test** and **integration test** cases every week, warranting the functionality of new features.

Chatbot GPT | React.js, HTML, CSS, JavaScript, Node.js, OpenAI API
- Crafted a dynamic and interactive ChatGPT clone utilizing **React**.js and Node.js, integrating OpenAI API for advanced conversational capabilities, enhancing both functionality and user experience.

Leo Bot | Next.js, HTML, CSS, JavaScript, Node.js, OpenAI Assistant API
- Developed a personal chatbot assistant using Next.js and TypeScript, integrating OpenAI Assistant API for enhanced conversational capabilities.

Car Repairing System Design | Python, **Relational DBSM**, PostgreSQL, Streamlit, Database Design, Azure, SQL
- Developed a full-stack e-commerce platform for car parts trading, designing **schemas** and EER **diagrams**, and integrated a **PostgreSQL** database using psycopg2, enhancing data management efficiency.
- Designed complex SQL queries, **optimizing query performance** through carefully indexing and query plan analysis.

Stock Data | C# .NET, Visual Studio, Object Oriented Programming, Git/Github
- Orchestrated the creation of a **C# .NET** Windows Forms application to deliver stock data visualization and management through GUI design and object-oriented class implementation in Visual Studio.

api4all | Python, **ML/LLM** provider, **ML/LLM** API, Object Oriented Programming, **open-source**
- Maintained an easy-to-use **open-source** project, integrating cutting-edge models from state-of-the-art providers and conducting comprehensive comparisons to ensure optimal performance and functionality.

Resume Keywords | Python, Streamlit**, Snowflake, Snowflake Arctic LLM,** Replicate**, Streamlit**
- Implemented a Streamlit app powered by Snowflake Artic LLM to generate optimized resume bullet points from keywords.
- Utilized Snowflake Data Cloud to store, query, and managed large datasets, to ensure seamless data retrieval in the application.

LEADERSHIP

Software Lead **Association for Computing Machinery – USF Chapter** November 2023 – Present
- Leading a team project of 8 by creating detailed project plans, functional requirements, and documentation.
- Hosting technical workshops and mentoring other members in preparing and delivering their workshops, fostering a collaborative learning environment.