Dan Nguyen

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Education

University of Massachusetts Lowell — Lowell, MA
Master of Science in Computer Science — *May 2025*
Bachelor of Science in Computer Science, Minor in Mathematics — *May 2024*

- Graduated Summa Cum Laude (GPA: 3.99)

Research Experience

Research Assistant — Aug 2024 – May 2025
University of Massachusetts Lowell — *Lowell, MA*

- Performed analysis in **Python** on >100,000 time-series data points regarding military rucksack training exhaustion
- Cleaned >100,000 time-series data points with **scikit-learn**, **pandas**, normalizing data and removing bad data
- Created variational autoencoder (VAE) to produce ≈5000 synthetic data points to supplement original data
- Constructed time-series forecasting LSTM model to predict future heartrate based on measurements in real time
- Trained model using k-fold cross validation with 5 splits, verifying model correctness and performance
- Achieved average RMSE of 4.6894 and average MAPE of 2.6819 across 5 fold of cross validation
- Presented data, findings, and model with visualizations through **matplotlib** and **seaborn**

Industry Experience

Software Engineering Intern — May 2022 — Aug 2024
Jacobs Engineering Group — *Hudson, NH*

- Designed microservice architecture, employing **Docker** containers to separate 6 different services
- Applied **ASP.NET Core** for a responsive and functional backend system servicing up to 8 GBs of data
- Used **Typescript React** to create effective and user-friendly interfaces which boosted productivity by up to 25%
- Incorporated **GraphQL** to communicate between services in sophisticated and efficient manner
- Built graph DB model with **Neo4j** to organize 10,000+ aeronautical data points and establish foundation for procedural generation of route verification tasks
- Rewrote **.NET** application to optimize 1000 different procedures for aircraft landing/departures
- Assessed and refactored over 500 lines of legacy code to meet organizational and industry standards
- Analyzed and parsed over 800 aeronautical data files to structure **SQL** databases and query for information
- Employed **Microsoft Azure DevOps** for version control and task management between 6 team members

Technical Skills

Languages: Python, C/C++, C#, GraphQL, SQL (Postgres), JavaScript, Typescript, HTML/CSS, Bash
Technologies: NetworkX, PyTorch Geometric, PyTorch, scikit-learn, pandas, NumPy, Matplotlib, seaborn, Neo4j
Developer Tools: Jupyter Notebook, Git, Github, Azure DevOps, Docker, VS Code, Visual Studio, VIM, GCC

Projects

Taste or Terminate? - Predicting Restaurant Failure Through Yelp — April 2024
Python, scikit-learn, pandas, PyTorch, NumPy, NetworkX, matplotlib

- Utilized **Python** to extract restaurants from Yelp Academic Dataset, transforming them into over 40,000+ succinct data points for model development
- Analyzed Yelp social network with **pandas** and **NetworkX** to identify 500 influential, key users (opinion leaders)
- Conceived unique feature extraction strategy for creating 13 info-rich features; achieved 0.899 recall and 0.79 F1-score on own handcrafted neural network using novel features
- Conducted ablation analysis and discovered that classification performance improved over 13% with novel features