Duc La

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Education

University of Utah August 2023 - December 2025
Bachelor of Science in Computer Science (GPA: 3.96 / 4.00) *Salt Lake City, Utah*

Experience

National Science Foundation REU at the University of Utah May 2024 – August 2024
Summer Undergraduate Researcher *Salt Lake City, Utah*

- Conducted in-depth analysis of latent spaces comparing Komonogorov Arnold Neural Network (KAN) neurons with **Multilayer Perceptrons** using **Pytorch**. Used dimensionality reduction techniques such as **t-SNE and UMAP** to determine the difference in how both type of neural networks ”learn” for a set of **20** different classic tasks, ranging from **digit recognition** to **spleen segmentation**.

AIR Corporation May 2023 – Aug 2023
Software Engineer Intern *Reno, Nevada*

- Developed a **real-time video segmentation system** to assess crack and spall severity of bridges, achieving **90.6% mean pixel accuracy** using **48 hours** of bridge inspection data collected by a climbing robot.
- Researched and tested **10** different **segmentation models** for the task of crack and spalling detection using **Pytorch and Tensorflow**. Developed specialized segmentation model that **increased metrics for mIOU by 10%**.

ARA Labs May 2023 – Aug 2023
Summer Undergraduate Researcher *Reno, Nevada*

- Collaborated with PhD students to develop the **Multi-directional Bicycle Robot** automating the task of bridge inspection for steel bridges. Results were published in a top robotics conference IROS 2022.
- Developed **ROS** control algorithms in **C++** to enable precise navigation and camera operation. Solved **traveling salesman problem** with optimized **Djistrika's Algorithm** in **Python** to enhance inspection efficiency.

Projects

Canvas Website | *HTML, CSS, JS, Django, AWS, AJAX, NGINX* December 2024

- Developed a Canvas-like platform for college students to manage assignments and view grades, using semantic **HTML, CSS, and Django** for models and dynamically generated views.
- Integrated **JavaScript** for website logic and **AJAX** to enable **asynchronous updates** and improve responsiveness. Deployed the application on **AWS** with **NGINX** for security, ensuring reliable hosting, and optimized user experience with responsive design and efficient backend logic.

Agario Application | *C#, Asynchronous Networking, .NET, MAUI, XML, JSON* April 2024

- Created an Agar.io game using **C# with .NET and MAUI** implementing client-server communication to render objects based on **JSON** data. Rendered graphical interface with **XML** while handling user input by using **vector math** for player movement and a **timer** player splitting and player merging.

Technical Investing Algorithm | *Python, pandas, bs4*

- Achieved a strategy that **consistently outperformed the S&P 500 from 2014–2023**. Web-scraped CNBC and Yahoo Finance using **bs4** to compile a comprehensive dataset of **S&P 500 and Nasdaq 100 stocks**, including price data and financial statements.
- Processed large **pandas** dataframes efficiently by leveraging **data structures** (hashmaps, sets, queues, heaps) and **OOP principles** (e.g., stock and trade classes). Developed and backtested a **rule-based trading strategy** using technical indicators to define profit targets and risk management thresholds.

Technical Skills

Languages: Python, Java, C++, C, C#, JavaScript/TypeScript, HTML/CSS, SQL, R,
Technologies: Django, TensorFlow, PyTorch, jQuery, ASP.NET, Qt, Robotics Operating System(ROS), pandas, PostgreSQL, MySQL, MongoDB, AWS, Git, Arduino, Docker
Can speak:English, Spanish, Vietnamese