Nelith Ranaweera

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Education

University of Guelph 2021 – Present
Honours Bachelor of Computing (Software Engineering) *Guelph, ON*
- *Dean's Honours List: Fall 2023, Winter 2024, Fall 2024*

Experience

Undergraduate Teaching Assistant September 2024 – December 2024
University of Guelph *Guelph, ON*
- Providing academic support and clarifying course material for students through email and office hours.
- Grading course deliverables, ensuring consistent and fair application of grading rubrics.
- Leading lab sessions to provide hands-on guidance, reinforcing key concepts taught in lectures.

CIS*4900 Research

Evolutionary Computation Research April 2024 – September 2024
SOCS Evolutionary Computation Lab *University of Guelph*
- Contributed to the research, design, and experimentation of a new variant of the differential evolution algorithm, integrating novel approaches to improve performance.
- Developed a robust experimental framework in Julia to benchmark the improved algorithm against a range of complex optimization problems, enabling comprehensive analysis.
- Analyzed experimental data to identify critical opportunities for optimizing the algorithm's speed, efficiency, and accuracy, providing insights for optimizing performance.

Projects

Battlesnake AI Decision Cloning | *Python, ML, SVM, Neural Networks, AWS*
- Developed a machine learning model to replicate the decision-making process of a top-performing Battlesnake AI using supervised learning techniques.
- Engineered and processed a dataset of 13,967 game frames, extracting strategic features such as snake positions, distances to food, and movement constraints.
- Deployed the trained AI on an AWS server to evaluate its performance in real Battlesnake competitions.

Fullstack Job Search Application | *Java, RESTful API, Python, SQL, React, Docker, Spring Boot*
- Created a web scraper using Python's BeautifulSoup library to scrape job listings from Indeed, LinkedIn, and the Canadian Job Bank.
- Implemented a RESTful API in Java to facilitate communication between front-end and back-end components.
- Utilized Docker to containerize both front-end and back-end services, ensuring a consistent environment for development and deployment.
- Integrated an SQL database for persistent data storage, supporting complex queries for retrieving filtered lists of jobs.
- Developed a responsive front-end using React.js to allow users to search for job opportunities based on location, role, and salary.

Molecule Display Interface | *C, SQL, HTML/CSS, jQuery*
- Built a comprehensive library in C to facilitate the creation, representation, and manipulation of molecules.
- Integrated an SQL database for efficient storage, management, and retrieval of customized molecule data.
- Developed a user-friendly GUI using HTML, CSS, and jQuery to display custom molecules on a web server.

Technical Skills

Languages: C, C++, Python, Java, C#, SQL, Ruby, HTML/CSS
Methodologies: Unit testing, Object-oriented programming, Agile, Design patterns
Developer Tools: Git, R, Docker, Spring, React, Rails, CI/CD Pipelines, JUnit