

JACK A. ROGERS

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EDUCATION:

University of Colorado Boulder, B.S. Computer Science

August 2019 – May 2023

- Relevant Coursework: - Data Structures, Algorithms, Software Development, Artificial Intelligence, Data Science, Operating Systems, Object Oriented Analysis and Design, HCI, Engineering Management
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PROJECTS/EXPERIENCE:

Northrop Grumman Capstone Project - Custom Prediction Models for Autonomous Driving

- Led the development of a custom web app to host and demonstrate the team's prediction models, utilizing HTML/CSS, and JavaScript, resulting in a polished and user-friendly interface that impressed the client, Northrop Grumman.
- Coordinated and facilitated effective communication between team members and Northrop Grumman as the communications lead, ensuring smooth collaboration and timely completion of project milestones.
- Designed and implemented highly accurate and robust prediction models using Python, PyTorch, and L5Kit, surpassing the client's performance requirements and earning high praise for their technical performance.

Regression with Genetic Algorithms

- Implemented regression in Python for given data using genetic algorithms and studied performance using benchmark examples to maximize fitness of a population of 1000 expressions.
- Generated an initial population of candidate expressions, selected the top 20% of "elite" expressions, and incorporated crossover and mutation operators to produce the remaining expressions for each generation.
- Evolved the population over 100 generations to produce an average best fitness of -63.745 (negation of least square error) for 5 different test cases.

Reinforcement Learning

- Produced intelligent agents with Python using value iteration and Q-learning to conduct the following tasks: navigate a grid world environment, learn to crawl via a simulated robot controller, and play Pacman.
- Resulted in a 100%-win rate on varying sizes of Pacman grids after thousands of training exercises.

Health and Wellness Website - HTML/CSS, JavaScript, SQL, and NodeJS

- Worked in a 4-person team to create a website that helps users optimize mental and physical health.
- Included functionality such as diet tracking, workout programs, and journaling for mental clarity.

Case Study Database Design - MySQL

- Implemented a robust key-based data model for a fictional landscaping company, Eden Landscaping, Inc., including 8 fully attributed tables in third normal form, with clear relationships, optionality, and cardinality.
 - Successfully executed DDL to create the database, populated tables with SQL inserts, and demonstrated proficiency in querying specific rows and columns of data.
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TECHNICAL SKILLS:

- Languages: C++, Python, C, Java, JavaScript, HTML/CSS, SQL, Bash, Scala
 - Frameworks and Tools: Git, GitHub, React, Node.js, Pandas, NumPy, Matplotlib, PyTorch, Bootstrap
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EXTRACURRICULAR ACTIVITIES / LEADERSHIP:

Lacrosse Team Captain and Officer - University of Colorado, Boulder

Fall 2019 – Spring 2021

- Led the CU Boulder lacrosse team as an officer, responsible for planning the logistics of away games, managing a budget of over \$100,000, and procurement of necessary gear and equipment.
- Demonstrated strong leadership, time-management skills, and ability to balance a 15-hour commitment to the team alongside academic responsibilities.

Landscaper - AJ Lawn Services, Boulder, CO

May 2022 – Present

- Collaborated with a team of landscapers to successfully transform residential and commercial properties, showcasing strong leadership, project management, and problem-solving skills.