

JACK A. ROGERS

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EDUCATION:

University of Colorado Boulder, B.S. Computer Science – GPA: 3.436

August 2019 – May 2023

- Relevant Coursework: - Data Structures, Algorithms, Software Development, Artificial Intelligence, Machine Learning, Data Science, Operating Systems, Object-Oriented Programming, HCI, Engineering Management
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PROJECTS / EXPERIENCE:

Northrop Grumman Capstone Project - Custom Prediction Models for Autonomous Driving

- Leveraged AI/ML techniques for creating robust prediction models, successfully applying statistical modeling and algorithm development to drive optimization and classification in an autonomous driving scenario.
- Built a custom web app using HTML/CSS, and JavaScript, to host and demonstrate our team's models, meeting Northrop Grumman's performance requirements and exceeding their expectations.
- Served as communications lead, facilitating effective collaboration between team members and client stakeholders to ensure timely project milestones completion.

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

- Utilized value iteration and Q-learning to train intelligent agents, conducting tasks such as navigating a grid world environment and playing Pacman, reflecting competency in prototyping and developing AI techniques.
- Achieved a 100%-win rate on varying sizes of Pacman grids after extensive training exercises, showcasing effective use of AI/ML frameworks for problem-solving.

Health and Wellness Web Application - HTML/CSS, JavaScript, SQL, and NodeJS

- Collaborated in a team of 4 to develop a health and wellness website, successfully integrating diet tracking, workout programs, and journaling functionality.

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.