ARNAV THAREJA

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EDUCATION

University of Washington | *Seattle, WA*   Expected Graduation: June 2024
Bachelor of Science, Computer Science

Cumulative GPA: 3.97

Coursework: Data Structures and Parallelism, The Hardware/Software Interface, System and Software Tools, Discrete Math, Probability and Statistics, Linear Algebra, Differential Equations

EXPERIENCE

Personal Robotics Lab   May 2021 – Present
Undergraduate Researcher   *Seattle, WA*

· Working on multi-agent navigation and task allocation with MuSHR cars
· Designed and implemented algorithms for non-holonomic multi-agent navigation with optimal task allocation
· Built ROS (Robot Operating System) wrappers around algorithms to enable easy interfacing with existing systems
· Sped up robot trajectory comparison framework by 50x by directly analyzing ROS bags through the rosbag Python API
· Demonstrated and tested system capabilities and translation to real-world environments on physical robots

Husky Robotics   October 2020 – Present
Software Engineer, Autonomous Navigation Subteam   *Seattle, WA*

· Created robot pathfinding and autonomous navigation algorithms for a prototype Mars rover using C++
· Integrated ROS2 into codebase using nodes and topics for navigation plan visualization
· Defined and implemented a navigation algorithm to locate targets based on approximate GPS coordinates
· Defined patterns for driving between two posts given GPS coordinates of the center
· Leveraged Docker for CI (continuous integration)

Mathnasium   May 2019 – June 2020
Instructor   *Renton, WA*

· Taught students grades K-12 topics in math up to calculus and helped develop an intuitive understanding of math concepts
· Contributed to smooth operation of the center and interacted with parents and prospective customers

PROJECTS

Angles | *DubHacks 2020 – Newsprint Track Finalist (Top 3 out of 70+ Projects)*   *github.com/abhaybd/angles*

· Developed a Chrome Extension that suggests news articles of opposite bias when a news website is visited
· Used Google Cloud NLP to extract relevant keywords from news articles to use in our opposite bias algorithm
· Selected as a finalist in the Newsprint track and recognized as one of the top 3 projects out of over 70 projects

Chess | *Personal Project*   *github.com/arnavthareja/chess*

· Built a chess game in Java that can be played in the terminal
· Implemented a minimax algorithm with alpha-beta pruning for automated gameplay with informed move selection
· Used a heuristic-based iterative deepening depth first search algorithm and memoization to improve runtime

Yearbook 2020 | *Personal Project*   *yearbook-hhs.web.app*

· Designed and developed a web application for students and graduates to sign yearbooks virtually during COVID-19
· Utilized JavaScript, HTML, CSS, and Google Firebase for user authentication, cloud storage, and NoSQL database

Popular Music Analysis | *Personal Project*   *github.com/arnavthareja/music-analysis*

· Analyzed features in popular music using Python and searched for patterns
· Used the Spotify API to get data about popular music and features from Spotify

SKILLS

Languages	Java, C++, Python, C, JavaScript, HTML, CSS
Tools	ROS (Robot Operating System), Docker, GDB (GNU Debugger), Linux, CMake, Git, GitHub, LaTeX
Other Skills	Communication, Leadership, Project Management