ARNAV THAREJA

858.252.9415 | athareja@uw.edu
arnavthareja.github.io | linkedin.com/in/arnavthareja | github.com/arnavthareja

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

Planned Coursework: Algorithms, Operating Systems, Distributed Systems, Autonomous Robotics, Computer Vision, Databases, Systems Programming

EXPERIENCE

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

- Working on multi-agent autonomous 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

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

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

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