BOSHEN ZHANG

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EDUCATION

University of Southern California, Viterbi School of Engineering, GPA: 3.66/4.0 — Los Angeles, CA
Master of Science, Computer Science (Intelligent Robotics) — Jun 2023 - May 2025
Coursework: Algorithm Analysis, Machine Learning, Robotics, Autonomous Decision-Making, Computational Human-Robot Interaction, Linear Programming and Extensions

Virginia Tech, GPA: 3.60/4.0 — Blacksburg, VA
Bachelor of Science, Computer Science & Mathematics, *magna cum laude* — Aug 2018 - Dec 2022
Coursework: Human-Computer Interaction, GUI Programming, Mobile Software Development, Issues in Scientific Computing

EXPERIENCE

ICAROS Lab, Los Angeles, CA | *Research Assistant* — Dec 2023 - Present
Research focus on human-robot interaction in simulated environment

- Created a Pygame-based multi-agent Overcooked environment for interaction between two agents
- Developed a Python script enabling the Fetch robot to grasp and drop objects at specified locations in iGibson simulated environment

Virginia Tech, Blacksburg, VA | *Research Assistant* — Aug 2022 - Dec 2022
Conduct qualitative study on the impact of integrating practical skills and co-curricular activities into the CS curriculum

- Analyzed open-ended responses from over 200 students by thematic analysis and evaluated impact of practical skills on their outside computer science activities such as internships, undergraduate research projects, and hackathons
- Processed and lemmatized over 750 open-ended responses utilizing Natural Language Toolkit (NLTK) with Python, then leveraged Pandas to organize and analyze student feedback, therefore identifying recurring themes within students' responses
- Compared student responses using sentiment analysis, examined emotional insights and visualized sentiment patterns for 5 consecutive semesters

Virginia Tech, Blacksburg, VA | *Software Engineer* — Aug 2021 - May 2022
Develop effective model for drunk driver interdiction game. Given a limited policing resource and the information of historic DUI driving events, this project is to build a model to study how to set up optimal policing resources to prevent DUI events.

- Designed a website has been used as a teaching tool for K12 students for 2 semesters, reaching 100 daily active users
- Implemented a website with JavaScript, Express.js, jQuery, Bootstrap, specifically designed to manipulate and showcase behavior of a drunk driver linear model built in Pyomo
- Processed Asynchronous HTTP request with Ajax and maintained and analyzed user behavior data with MySQL.
- Reviewed and debugged website with regular updates based on weekly presentations within a group of three.
- Awarded Finalist for IISE DAIS Mobile/Web App Competition (2022) and 4th place in final presentation for IISE Annual Conference & Expo (2022)

PROJECTS

Fetch Arm manipulation in iGibson | Research Assistant — Dec 2023 - Jan 2024
Developed a Python script enabling the Fetch robot to grasp and drop objects at target locations in iGibson simulated environment.

- Implemented Inverse Kinematics for precise robot configurations in response to target positions
- Created configuration files for each object in the iGibson interaction scene including object grabbing offsets
- Generated motion planning trajectories using RRT algorithms to navigate objects efficiently while avoiding collisions

Smart Search | Project Lead, Frontend Developer — Mar 2022
Developed a chrome extension enabling synonyms, images, and video search as a smart alternative for Ctrl + F

- Led a team of four software engineer, Built frontend application with JavaScript leveraging semantic UI, and developed synonyms/image recognition and highlighting feature accomplishing 87% search accuracy
- Troubleshooted during development and published chrome extension on Google Cloud within required 36 hours
- Awarded Overall 2nd place for VTHacks IX Hackathon

TECHNICAL SKILLS

Robotics: Motion Planning, Kinematics, Probabilistic reasoning, Machine Learning, Reinforcement Learning
Tools: ROS, Git, Linux, Pandas, Unity, Docker
Programming Languages: Python, Java, C, C#, Swift, SQL, MATLAB, JavaScript

LEADERSHIP & INVOLVEMENT

Member: General Secretary, Council of International Student Organization (2019 - 2020); Member, University Robot Team, RoboGrinder (2020 - 2021)