

# Ruchi Bhalani

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Adaptable, detail-oriented CS student with experience in full stack development and robotics. Undergraduate researcher for 1.5 years at the Learning Agents Research Group (LARG) in the UT Austin AI lab.

**SKILLS:** Java, C, C++, Python, ROS (Robotics Operating System), JavaScript, React, SQL, Flask, ML, AI, human-robot interaction

## PERSONAL COMPUTER SCIENCE PROJECTS AND RESEARCH

### Tail Wagging the Dog: Perceptions of Canine vs Non-Canine Behavior in a Quadruped Robot

UT Austin Autonomous Robotics Laboratory | [Research Paper](#) | [Github Repo](#)

- Enabling Boston Dynamics's quadruped robotic dog, Spot, to make canine-like body movements such as tail wagging and sitting, measuring difference in perception of consciousness and autonomy
- Conducting human survey of over 200 people using an abbreviated version of Godspeed questionnaire and analyzing results to determine whether the new behaviors cause people to perceive the robot as more dog-like
- With the added behaviors, people perceive the robot as more dog-like, responsive, interactive, and lifelike
- Accepted into Capital of Texas Undergraduate Research Conference and UT Undergraduate Research Forum
- 31st IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN)

### Body Imitation: Human Body Movement Recognition and Robotic Emulation

UT Austin Autonomous Mobile Robotics Laboratory | [Research Paper](#) | [Github Repo](#)

- Body imitation by a humanoid simulation using Azure Kinect SDK for body tracking, ROS, and the Darwin-OP
- Created a body tracking algorithm to recognize human body movements, and after a human body movement is recorded, the humanoid robot is able to imitate it
- Mapped the joint angles and quaternion positions with Azure Kinect, and python algorithm determines change in position and calculates subsequent joint planning for Darwin-OP
- Used a home-forked neural net to recognize human body movements and accurately map them onto the robot

### Diminishing Disasters.me

[Website Link](#) | [Gitlab Repo](#)

- Website that connects users to charitable organizations providing relief for natural disasters worldwide
- Worked on full tech stack, using React, TypeScript, and JavaScript for frontend and web scraping, Python, Postman, and SQL Alchemy, and PostgreSQL for backend, database population, and dynamic API calls
- Used testing frameworks such as Jest, Python's unittest, and Selenium to test the frontend, backend, and GUI
- Utilized AWS Amplify for static website hosting, AWS Elastic Beanstalk for backend deployment, and AWS RDS for database hosting, as well as pgAdmin to view the status of the database as it gets populated

## EDUCATION

University of Texas at Austin, Austin, Texas

May 2023

### B.S. in Computer Science

GPA: 3.81

- Relevant Coursework: Data Structures, Computer Architecture, OS, Algorithms, Software Engineering
- Organizations and Extracurriculars: Freshman Research Initiative Teaching Assistant, Autonomous Robotics Laboratory Undergraduate Research Assistant, Texas Convergent Forge Technical Project Manager

## EXPERIENCE

Amazon

June 2022 - August 2022

Software Development Engineer Intern | Seattle, WA

Texas Convergent Forge: Junior Achievement WorldWide (JAWW)

February 2022 - Present

Technical Project Manager

- Mentoring a team of engineers to build an e-commerce website for the non-profit JAWW that allows student entrepreneurs to sell their products online on a cohesive and trustworthy platform
- Customizing a solution using React for frontend, Firebase for backend, and Stripe for payment processing

UT Austin Department of Computer Science

January 2022 - Present

Peer Mentor/Teaching Assistant

- Assisting around 50 students in robotics, C++, ROS, and computer vision projects in addition to teaching them the fundamentals of robotics, Building-Wide Intelligence Robots, ROS and more