

# Benjamin Dossett

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## Education

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### University of Denver

Denver, CO

*Master of Science in Computer Science*

*Expected June 2024*

- **Research Interests:** Mixed Reality, Autonomous Robotics, Human-Robot Teaming

*Bachelor of Science in Computer Science*

*September 2018 - March 2022*

## Experience

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### Autonomous Robotics and Interactive Systems Experimental (ARISE) Lab

Dec 2021 – Present

*Robotics Software Engineer*

*Denver, CO*

- Implemented a ROS-based Mixed Reality interface for human-robot teaming, using Python, C++, and Microsoft Hololens 2 (C# and Unity).
- Implemented Mixed Reality features on Hololens 2, including interactive user interfaces and eye tracking.
- Led the integration of a ROS software stack on three autonomous ground robots, enabling key experiments.
- Performed regular troubleshooting and integration on hardware and software for autonomous ground robots.
- Integrated open-source C++ code for 3D scene graph generation in outdoor environments, enabling a major component of a project.
- Delivered regular presentations on project progress to stakeholders.
- Led two in-person human subjects studies, interacting with participants and analyzing data for publication.

### DU Build-A-Bot Project @ University of Denver

Mar 2022 – Present

*Full Stack Software Engineer / Student Lead / Graduate Research Assistant*

*Denver, CO*

- Led development of a full stack web application using Angular, MongoDB, Express, and Node.
- Led development of a Unity application for interactive 3D robot design, enabling future research.
- Managed a 10+ member team, setting and achieving regular goals for development and design.
- Organized and oversaw three online human subjects studies, analyzing data for research and platform improvements.

### University of Denver

Jun 2022 – Jan 2023

*Robotics Course Designer*

*Denver, CO*

- Designed and curated an introductory course for the Computer Science Department, used annually as a precursor to the Software for AI Robotics course.
- Taught students to navigate and utilize ROS (Robot Operating System) effectively.
- Organized course content and created a reusable Canvas course for structured learning.
- Designed hands-on projects and a Docker container for streamlined robotics development.

## Projects & Publications

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### Brush-E Bot | C++, Embedded Programming, Hardware Design, 3D Modeling

- Worked with a team to design an interactive social robot to promote oral hygiene habits.
- Implemented the team's design goals in hardware and software using a microcontroller and C++.
- Accepted as part of the 2024 ACM/IEEE International Conference on Human Robot Interaction (HRI) Student Design Challenge.

### Selected Publications

- **Benjamin Dossett**, Weston Laity, Maisey Toczek, Robel Mamo, Jordan Sinclair, Nicole Train, Daniel Pittman, and Kerstin S. Haring. *Evaluating the Effectiveness of Iconography for Representing Robot Mental States in the Build-A-Bot Platform*. Full paper at IEEE RO-MAN 2023.
- Christopher Reardon, Jason M. Gregory, Kerstin S. Haring, **Benjamin Dossett**, Ori Miller, and Aniekanyang. 2023. *Augmented Reality Visualization of Autonomous Mobile Robot Change Detection in Uninstrumented Environments*. Just Accepted (August 2023) in ACM Transactions on Human-Robot Interaction.

## Technical Skills

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**Programming Languages:** C#, Python, C/C++, Javascript/Typescript, Java

**Research-Focused:** Robot Operating System (ROS), Unity, Mixed Reality Toolkit, Gazebo Simulation, RVIZ, Linux (Ubuntu)

**Hardware & Robots:** Microsoft Hololens, Clearpath Jackal, AgileX Scout Mini, Optitrack Motion Capture

**Web & Database Technologies:** Angular, MongoDB, SQL, Express, NodeJS, HTML, CSS