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EDUCATION

Ongoing

Exp. May 2024 **Doctor of Philosophy** **Tufts University**
Joint PhD in Computer Science and Human-Robot Interaction.
Research focusing on resilient robots in open-world domains.
Advised by Professor Matthias Scheutz.

Completed

August 2023 **Master of Science** **Tufts University**
Computer Science and Human-Robot Interaction (joint masters degree).

May 2020 **Bachelor of Science** **Wentworth Institute of Technology**
Computer science, minoring in applied mathematics, with emphasis on robotics.

SKILLS

Tools Proficiency with **Git**-based workflows, **Linux**, CLI, etc. \LaTeX .

Programming Languages Proficiency with **Python**, Java, C, **C++**. Experience with others (Assembly, Rust).

Frameworks Expertise in **ROS**, MoveIt, ROS_Control. Proficient in **ROS 2**, OpenCV, PCL. Competent with physics simulation systems (Gazebo, PyBullet).

Devices Custom **marine AUV's** (5-DoF and 6-DoF), Boston Dynamics '**Spot**', Fetch Robotics '**Fetch**', Universal Robots '**UR5**', Kinova '**ULeA**', custom differentially-driven robots.

Manufacturing/Debug Comfort with electrical debug for software (e.g., **oscilloscopes** for firmware development), **3D CAD** tools, and design for **3D printing**, mills, lathes, etc.

WORK EXPERIENCE

2023 - Present **Research Engineer** **Woods Hole Oceanographic Institution**
Conducting research on the *Sentry* deep-sea autonomous platform, participating in oceanographic field work.

2020 - 2023 **Graduate Research Assistant (Full-time), Human-Robot Interaction Lab** **Tufts University**
Wrote code and developed hardware for resilient robot behaviors in open-world domains. Emphasis on robotics, AI, cognitive architectures, and machine learning.

Summer 2021 **Graduate Robotics Co-Op** **Thinking Robots, Inc.**
Designed and manufactured hardware to meet NSF grant requirements for mobile disinfection system; wrote firmware/driver code to accompany robot add-ons.

Fall 2019 **Software Engineering Co-Op** **Thinking Robots, Inc.**
Wrote code to control a humanoid robot using natural language to specify robot goals.

JOURNAL PAPERS

2024 **Toward Competent Robot Apprentices: Enabling Proactive Troubleshooting in Collaborative Robots**
Christopher Thierauf, Theresa Law, Tyler Frasca, Matthias Scheutz.
In *MPDI Machines*.

2023 **"Do this instead": Robots that Adequately Respond to Corrected Instructions."**
Christopher Thierauf, Ravenna Thielstrom, Bradley Oosterveld, Will Becker, Matthias Scheutz.
In *ACM Transactions on Human-Robot Interaction (THRI)*.

CONFERENCE PAPERS

- 2022 **"ACuTE: Automatic Curriculum Transfer from Simple to Complex Environments".**
Yash Shukla, **Christopher Thierauf**, Ramtin Hosseini, Jivko Sinapov.
Autonomous Agents and Multiagent Systems (AAMAS)
- 2021 **"Robot Development and Path Planning for Indoor Ultraviolet Light Disinfection."**
Jonathan Conroy, **Christopher Thierauf**, Parker Rule, Evan Krause, Hugo Akitaya, Andrei Gonczi, Matias Korman, Matthias Scheutz.
International Conference on Robotics and Automation (ICRA).

SELECT PROJECTS

- 2023 **Project TOWER** **HRILab, Tufts University**
Led team in software development of an autonomous robot requested by Tufts Medical Center.
- 2021 **Sledbot and Plugbot** **HRILab, Tufts University**
Designed, manufactured, and wrote firmware for in-house autonomous robot platforms.
- 2016 – 2019 **Underwater ROV** **MATE International ROV competition**
Led software development for 3 underwater robot platforms for international competition.
- 2016 **Spectral Digitizer** **DASCH Project**
Wrote firmware for device to digitize the Harvard Astronomical Glass Plate Collection.

COMMUNITY DEVELOPMENT AND OUTREACH

- 2016-Present **Open Source Software Contributions** **github.com/cstO**
Released, bugfixed, and maintained packages on the ROS repositories, including:
 - `gpio_control`: Created package for device-agnostic gpio pin interfacing
 - `rosmodem`: Created package for interfacing with acoustic modems, z-wave, LoRa...
 - `monkeywrench`: Created package to allow for error injection in live ROS1 systems
 - `spot_ros`: Bugfixed existing package, extended for object manipulation
 - Added features and bugfixes to some core ROS 1 libraries/tools
- 2023 **Peer Review**
Reviewer for *Robotics and Automation – Letters*.
- 2020-2023 **Undergraduate Club Advising** **Wentworth IEEE, ACM, and Robotics Clubs**
Teaching ROS and other robotics skills to undergraduate robotics groups.
- 2020-2023 **Research Intern Supervising/Advising** **Tufts University**
Supervising undergraduate and masters students in full-time semester-long projects:
 - Ryan H., "Evaluation of novelty-solving RL agents." (2023)
 - Henry N., "Integration of vision system for HRI hospital interactions." (2023)
 - Cameron Y., "NLP systems for dynamic environments." (2023)
 - Henry G., "Navigation in real-world environments." (2023)
 - Daniel B., "Robot behaviors for interacting with elevators." (2023)
 - Henry G., "Schema-based local planning for dynamic environments." (2022)
 - Henry G., "Integration of Spot robot in DIARC architecture." (2022)
 - Aryaman P., "Socially-compliant robot navigation." (2021)
- 2022, 2023 **Mass Robotics Block Party**
Represented Tufts HRI program and lab at public event for robot education outreach.
- 2022 **Session Co-Chair, ASEE-NE**
Co-Chaired two sessions of local undergraduate conference, judged poster session.
- 2016-2020 **Professional Leadership** **Wentworth Inst. of Tech.**
Led local chapters of IEEE and ACM: WIT IEEE 2016-2020; WIT ACM 2016-2018

MEDIA APPEARANCES

- 2022 **CBS Boston**
Performed live robot demo of my own work and lab research for local news station.
<https://www.cbsnews.com/boston/video/boston-hosts-celebration-of-all-things-robotics>
- 2021 **Tufts Now**
"Building a Better Robot to Disinfect for COVID and More".
Article includes discussion of my design and implementation of a disinfection robot.
<https://now.tufts.edu/2021/05/06/building-better-robot-disinfect-covid-and-more>