Breanne Crockett
ROBOTICIST

Education

2022 - Present   **University of Colorado Boulder**
PhD, Computer Science
Advisor: Bradley Hayes

2017 - 2021   **University of Toledo**
BS in Computer Science and Engineering
Summa Cum Laude, College Honors

Research

Aug. 2022 –
Present   **Research Assistant**
Collaborative AI and Robotics Lab, University of Colorado Boulder
- Investigating multi-agent path planning and collaborative interfaces for 3D reconstruction tasks
- Implemented multi-robot simulation environment and conducted experiments with learning from demonstration and constrained motion planning algorithms

Jan. 2021 –
Aug. 2021   **Assistant Research Staff Member in Algorithms & Visualization**
Oak Ridge National Laboratory, Oak Ridge, TN
- Developed augmented reality interface for additive and subtractive manufacturing systems
- Created and published algorithm for slicing object for multi-build point 3D printers

Oct. 2020 –
May 2022   **Undergraduate Researcher**
Interdisciplinary Data Engineering And Science Lab, University of Toledo
- Analyzed data from digital interactive textbooks to generate statistical summaries and identify features for machine learning algorithms
- Perform clustering and other machine learning techniques to identify trends in students' behavior

Jun. 2021 –
Aug. 2021
Jun. 2020 –
Aug. 2020   **SULI Research Intern**
Oak Ridge National Laboratory, Oak Ridge, TN
- Implemented computational geometry algorithms to support slicing with an arbitrary plane in advanced additive manufacturing applications
- Developed methods to generate toolpaths for multi-build point 3D-printers focused on the optimization of workload distribution

Teaching	Aug. 2023 – Dec. 2023	**Teaching Assistant,** Advanced Robotics (CSCI 5302) **University of Colorado Boulder**, Boulder, CO Prof. Bradley Hayes
	Aug. 2022 – Dec. 2022	**Teaching Assistant,** Intro to Computing (CSCI 1300) **University of Colorado Boulder**, Boulder, CO Profs. Supriya Naidu, Tom Yeh, & Michael Hofer
	Aug. 2018 – Dec. 2021	**Teaching Assistant,** Intro to Object-Oriented Programming (EECS 1510), Nonlinear Data Structures (EECS 2510) **University of Toledo**, Toledo, OH Profs. Lawrence Thomas & Joseph Hobbs

Publications

2024	Alex Roschli, Michael Borish, Abigail Barnes, Charles Wade, **Breanne Crockett**, Liam White, Cameron Adkins. "ORNL Slicer 2: Open-Source Copyright". USDOE Office Energy Efficiency, and Renewable Energy. (2024)
2023	**Breanne Crockett***, Kyler Ruvane*, Matthew B. Luebbers, and Bradley Hayes. "Effective Human-in-the-loop Control Handover via Confidence-Aware Autonomy". *In Proceedings of the Workshop on Life-Long Learning with Human Help (2023)*
	Charles Wade, **Breanne Crockett**, Michael Borish, and Robert Maccurdy; "Determining Optimal Print Orientation Using GPU-Accelerated Convex Hull Analysis". *Proceedings of the 8th ACM Symposium on Computational Fabrication (2023)*
	Tanner Hilsabeck, **Breanne Crockett**, Amir Parsaei, Kevin S. Xu, and M.W. Liberatore. "Clustering of Animation View Times in an Interactive Textbook for Material and Energy Balances". *Proceedings of ASEE Annual Conference (2023)*
2022	**Breanne Crockett** and Michael Borish; "Toolpath planning for multiple build points using k-means clustering". *Proceedings of 33rd Annual International Solid Freeform Fabrication Symposium (2022)*
	S.J. Stone III, **Breanne Crockett**, Kevin S. Xu, and M.W. Liberatore. "Animation analytics in an interactive textbook for material and energy balances". *Proceedings of ASEE Annual Conference (2022)*
	Breanne Crockett. "Measuring Students' Engagement with Digital Interactive Textbooks by Analyzing Clickstream Data". *Proceedings of the AAAI Conference on Artificial Intelligence: AAAI Undergraduate Consortium (2022)*

Skills	Programming Languages	Python, C++, C#, JavaScript, HTML/CSS
	Frameworks & Applications	Unity, Docker, ROS, ROS2, Qt, Keras, Pandas, Git
	Platforms	Windows, Linux, Microsoft HoloLens, Oculus Quest, Unitree Go1, Amazon Deepracer, Rethink Robotics Sawyer