

Isaac B. Love

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EDUCATION

- Fall 2020 - present University of Illinois, Urbana-Champaign, IL
Doctoral program in Computer Science
Advisor: Dr. Nancy M. Amato
Research Area: Motion planning for automated design of complex physical systems and robotics.
- Fall 2015 - Spring 2020 University of Washington, Seattle, WA
Bachelor of Science in Computer Engineering, College Honors, Magna cum Laude
Bachelor of Science in Mathematics, College Honors, Magna cum Laude
Interdisciplinary Honors, GPA: 3.89/4.00.

AWARDS and HONORS

- 2020 - present LEAP Fellow. The LEAP Alliance programs include mentorship, professional development and community building with a focus on ensuring students are informed about academic career opportunities and inclusion in the tech sector.
- 2020 - present Phi Beta Kappa, Member.
- 2018 - present Tau Beta Pi, Engineering Honor Society, Member.
- Spring 2020 Outstanding Student in the BS Standard Mathematics degree program for 2019-2020. One award given per year. University of Washington, Department of Mathematics.
- 2015 - 2020 University of Washington Dean's List: Autumn 2015, Winter 2016, Spring 2016, Autumn 2016, Winter 2017, Autumn 2017, Spring 2018, Autumn 2018, Winter 2019, Spring 2019; Autumn 2019, Winter 2020, Spring 2020
Annual Dean's List: 2015-2016, 2018-2019; 2019-2020.
- Fall 2015 Won the UW Fall 2015 CSE 142 programming tournament for the section of several hundred students. Critters game featured simple rules but complex player interactions for many competitive strategies. Student efforts were matched in an autonomous virtual four-player free-for-all elimination tournament. My submission beat all other entries and won the tournament.

EXPERIENCE

- Fall 2020 - Present **Research Assistant at PARASOL Lab**,
University of Illinois, Urbana-Champaign, IL
Advisor: Dr. Nancy M. Amato
Department of Computer Science.
Research is on motion planning for automated design of complex physical systems and robotics.

- Fall 2020 **Teaching Assistant for CS 241 Systems Programming,**
University of Illinois, Urbana-Champaign, IL.
- Fall 2019 -
Spring 2020 **Undergraduate Researcher in Department of Mathematics,**
University of Washington, Seattle, WA
Advisor: Dr. James Morrow, Barbara Sando and Vaho Rebasoo Term Professor in
Mathematics.
Honors thesis: Levenberg-Marquardt Algorithm in Robotic Controls.
- Fall 2017 -
Spring 2020 **Undergraduate Researcher in the Sensor Systems Laboratory,**
University of Washington, Seattle, WA
Advisor: Dr. Joshua Smith, Milton and Delia Zeuschel Professor, Computer Science and
Engineering, Electrical and Computer Engineering, and Lab Director.
Honors thesis: Using a Non-Iterative Inverse Kinematic Method to Imitate a Human Arm
with a PR2 Robot.
- Summers 2017,
2018, 2019 **Research Intern at Klar Scientific, LLC,**
Pullman, WA
Klar is a start-up that designs and produces microscopes for spectral analysis.
Designed and created a prototype autofocus algorithm, demonstrated feasibility of operating
microscope with limited computing resources, and migrated spectrum analysis from CPU-
based system to GPU-based system, speeding computation from days to minutes.

PROFESSIONAL ACTIVITIES

- Fall 2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2023
Student Volunteer, October 2023, Detroit MI.
- 2021 - present Mentored undergraduate researchers in PARASOL lab as part of the CS STARS program
for women in Computer Science. Research is on exploring different system topologies using
a random algorithm to iteratively modify system geometry.
- 2020 – present Reviewer for IEEE/RSJ International Conference on Intelligent Robots and Systems
(IROS), IEEE International Conference on Robotics and Automation (ICRA), IEEE
Robotics and Automation Letters (RAL), IEEE Transactions on Robotics (T-RO).
- Fall 2017 -
Spring 2018 Advanced Robotics UW
Improved automatic turret aiming using machine learning based computer vision.
- Winter 2016 -
Spring 2017 University of Washington Society for Advanced Rocket Propulsion (SARP)
Avionics and Recovery sub-team. Programmed a remote-controlled rover that explored
and transmitted video of its surroundings after leaving the rocket (2017). Designed
and programmed data collection system for telemetry. Designed and built the sending and
receiving systems (2017). Programmed data collection system for telemetry (2016).

PUBLICATIONS

1. Chad Peterson, Isaac Love, Satya Peddada, Danny Lohan, Yuqing Zhou, Ercan Dede, Nancy Amato, and James Allison. Automated 3D Pipe and Wire Routing Framework for Rapidly Generating Diversified Design Solutions. IDETC 2023 Computers and Information in Engineering Conference. August, 2023.
2. Amnon Attali, Stav Ashur, Isaac Burton Love, Courtney McBeth, James Motes, Diane Uwacu, Marco Morales, and Nancy M. Amato. Evaluating Guiding Spaces for Motion Planning. IROS 2022 Workshop on Evaluating Motion Planner Performance: Metrics, Tools, Datasets, and Experimental Design. October, 2022.
3. Honors Thesis: Using a Non-Iterative Inverse Kinematic Method to Imitate a Human Arm with a PR2 Robot. University of Washington, Allen School of Computer Science and Engineering, Advisor: Dr. Joshua Smith. May, 2020.
4. Honors Thesis: Levenberg-Marquardt Algorithm in Robotic Controls. University of Washington, Department of Mathematics, Advisor: Dr. James Morrow. May, 2020.