RUOJIA SUN

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EDUCATION

University of Colorado Boulder (Boulder, CO) **August 2021 - Present**

Ph.D. in Creative Technology & Design, ATLAS Institute, College of Engineering
Advisor: Prof. Ellen Do

Cornell University (Ithaca, NY) **August 2020 - May 2021**

M.Eng. in Mechanical Engineering, Concentration: Robotics
Advisor: Prof. Hadas Kress-Gazit

Cornell University (Ithaca, NY) **August 2016 - May 2020**

B.S. in Mechanical Engineering
Advisor: Prof. Cindy Hsin-Liu Kao

PUBLICATIONS

- Kunpeng Huang, **Ruojia Sun,** Ximeng Zhang, Md. Tahmidul Islam Molla, Margaret Dunne, Francois Guimbretiere, and Cindy Hsin-Liu Kao. 2021. WovenProbe: Probing Possibilities for Weaving Fully-Integrated On-Skin Systems Deployable in the Field. In Designing Interactive Systems Conference 2021 (DIS '21). Association for Computing Machinery, New York, NY, USA, 1143–1158. ***24% acceptance rate, BEST PAPER AWARD***
  https://doi.org/10.1145/3461778.3462105
- J. Chen, **R. Sun** and H. Kress-Gazit, "Distributed Control of Robotic Swarms from Reactive High-Level Specifications," 2021 IEEE 17th International Conference on Automation Science and Engineering (CASE), 2021, pp. 1247-1254
  https://doi.org/10.1109/CASE49439.2021.9551578
- **Ruojia Sun,** Ryosuke Onose, Margaret Dunne, Andrea Ling, Amanda Denham, and Hsin-Liu (Cindy) Kao. 2020. Weaving a Second Skin: Exploring Opportunities for Crafting On-Skin Interfaces Through Weaving. In Proceedings of the 2020 ACM Designing Interactive Systems Conference (DIS '20). Association for Computing Machinery, New York, NY, USA, 365–377. ***24% acceptance rate, BEST PAPER HONORABLE MENTION AWARD, BEST DEMO AWARD***
  https://doi.org/10.1145/3357236.3395548

RESEARCH AND PROFESSIONAL EXPERIENCE

A Creative Machine Environment (ACME) Lab, University of Colorado Boulder (Boulder, CO)

Graduate Research Assistant, Advised by Prof. Ellen Do **August 2021 - Present**

- Creating human-robot interactions and tangible interactions for personal and community wellness applications
- Developing intelligent agents to empower musicians to be more comfortable participating in collaborative music jams

Verifiable Robotics Lab, Cornell University (Ithaca, NY) **June 2020 - June 2021**

Graduate Research Assistant, Advised by Prof. Hadas Kress-Gazit

- Applied formal high-level specifications to swarm robot tasks in order to synthesize verifiably correct controllers for human-swarm robot interaction, demonstrated the approach in an interaction scenario with 10 Anki Vector robots
- Implemented asynchronous decentralized swarm control through multi-processing in Python

Hybrid Body Lab, Cornell University (Ithaca, NY) **June 2019 - November 2020**

Undergraduate Research Assistant, Advised by Prof. Cindy Hsin-Liu Kao

- Investigated materials and techniques for weaving on-skin interfaces for human-computer interaction (HCI), enabling input/output on the body surface such as pressure sensing and haptic feedback
- Developed the woven fabrication approach for fully-integrated multi-sensor on-skin systems that are resilient and capable of field deployment
- Planned and executed device wearability user studies with 10 participants

Cornell University Micro-Gravity Team (Ithaca, NY) **October 2018- June 2020**

Electrical Hardware and Propulsion System Co-Lead

- Designed the motor mount, conducted Design Failure Modes and Effects Analysis (DFMEA), and tested the propulsion system for autonomous rescue boat for NASA's *Micro-g NExT* Challenge, proposal accepted for testing at NASA's Neutral Buoyancy Lab

Cornell University Sustainable Design (Ithaca, NY) **January 2018 - December 2018**

Mechanical design engineer

- Identified materials and structure and created an analytical heat transfer model for an alternative energy heat exchanger which uses heat generated from compost for Stone Barns Center For Food And Agriculture

TEACHING

University of Colorado Boulder (Boulder, CO) **January 2022 - May 2022**

Graduate Teaching Assistant

- ATLS 2519: Computational Foundations II: Algorithms: led 3 recitations per week to review class material and provide homework support, hosted office hours, graded assignments

Cornell University (Ithaca, NY) **August 2020 - December 2020**

Graduate Teaching Assistant

- MAE 4300 Professional Practices in Mechanical Engineering: assisted students with technical problems and group discussions in class; graded assignments

HONORS & AWARDS

- Cornell BEE 4570 Biorobotics Biorobot Contest Champion (2020)
- Cornell MAE 5780 Autonomous Mobile Robots Final Robot Competition 2nd Place (2020)
- Cornell Engineering Dean's List (Fall 2016, Spring 2018, Fall 2019)
- Cornell Engineering Leadership Certification Program (2018), 1 of 20 selected out of over 70 applied

SKILLS

Software	Inventor, AutoCAD, SolidWorks, ANSYS
Fabrication	3D printing, laser cutting, mill and lathe, textile methods
Programming	Python (ROS), Matlab, Java, C, C++, R, LaTeX
Hardware	Arduino, Raspberry Pi
Language	English, Chinese

VOLUNTEERING & SERVICE

- **Cornell Micro-g:** STEM outreach events at local schools and science museum (2018-2020)
- **Cornell Alternative Spring Breaks:** participated in service learning program and service learning trip to Girls Educational and Mentoring Services (2017)

INTERESTS

- **Ballroom Dancing:** Vice Captain and Advanced Instructor of Cornell DanceSport Ballroom Dance Team (2018-2020), taught lessons weekly, organized showcases and coaching weekends; 32nd in adult amateur ballroom in the US (2020), National Finalist in Gold Standard Ballroom (2018)
- **Writing:** published Chinese memoir *My K-6 in the US and China* (2011) about my elementary school experience in the US, wrote monthly column for *Chinese Teenagers Digest* (2013-2016) on creative writing