

Chris Hill

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Research Interest

Chris Hill is a creative technologist, human augmentation researcher, and interaction designer. His research interests lie in human augmentation, sensory extension, transhumanism, biohacking, and educational technology. These interests have led to the development of open-source sensory extension and augmentation devices that he hopes will be replicated, accelerating scientific discovery and building stronger development communities in the field.

Education

08/2020 – 12/2022 Boulder, CO	University of Colorado, Boulder M.S. in Creative Technology & Design, ATLAS Institute
08/2016 – 07/2020 Boulder, CO	University of Colorado, Boulder B.A. in Computer Science, Department of Computer Science

Publications

Investigating Sensory Extensions as Input for Interactive Simulations

Chris Hill, Casey Hunt, Sammie Crowder, Brett L. Fiedler, Emily B. Moore, Ann Eisenberg.

To Be In Proceedings of TEI '23: ACM International Conference on Tangible, Embedded and Embodied Interaction, Work in Progress. Warsaw, Poland. February 26 - March 1, 2023.

What to Design Next: Actuated Materials and Soft Robots for Children

Chris Hill, Ruoqia Sun, Ellen Yi-Luen Do.

ACM CHI 2022 Workshop 39: Actuated Materials and Soft Robotics Strategies for Human Computer Interaction Design. New Orleans, LA. May 1, 2022.

Actuating Myself: Designing Hand-Games Incorporating Electrical Muscle Stimulation

Rakesh Patibanda, Xiang Li, Yuzheng Chen, Aryan Saini, **Chris Hill**, Elise van den Hoven, Florian 'Floyd' Mueller.

In Proceedings of CHI PLAY '21: ACM Annual Symposium on Computer-Human Interaction in Play. Virtual Event. October 18–21, 2021.

The ThreadBoard: Designing an E-Textile Rapid Prototyping Board

Chris Hill, Michael Schneider, Ann Eisenberg, Mark D Gross.

In Proceedings of TEI '21: ACM International Conference on Tangible, Embedded and Embodied Interaction. New York, NY. February 14-17, 2021.

A Wearable Meter That Actively Monitors the Continuity of E-Textile Circuits as They Are Sewn

Chris Hill, Michael Schneider, Mark D Gross, Ann Eisenberg, Arielle Blum.

In Proceedings of FabLearn 2020. New York, NY. October 10-11, 2020.

A Software Debugger for E-textiles and Arduino Microcontrollers

Michael Schneider, **Chris Hill**, Mark D Gross, Ann Eisenberg, Arielle Blum.

In Proceedings of FabLearn 2020. New York, NY. October 10-11, 2020.

“Our Dog Probably Thinks Christmas Is Really Boring”: Re-mediating Science Education for Feminist-inspired Inquiry

Annie Kelly, Christine Chang, **Chris Hill**, Mary West, Mary Yoder, Joe Polman, Shaun Kane, Michael Eisenberg, R. Ben Shapiro.

In Proceedings of the International Conference of the Learning Sciences. Nashville, TN. June 19-23, 2020.

Development and Preliminary Testing of an Augmented Reality System For Extravehicular Activity Operation.

Carlos Pinedo, Jordan Dixon, Christine Chang, Donna Auguste, Mckenna Brewer, Cassidy Jensen, **Chris Hill**, Devin Desilva, Amanda Jones, Jim Voss, Allison Anderson.

In Proceedings of International Conference on Environmental Systems (ICES 2019). Boston, MA. June 15-18, 2019.

Honors and Awards

2021 - IEEE World Haptics Conference Student Innovation Contest Honorable Mention
2020 - Graduate School Diversity Recruitment Fellowship
2019 - NASA SUITS Challenge (proposal ☑ accepted by NASA)
2019 - Google CS Research Mentorship Program Recipient
2019 - Computing Research Association: Outstanding Undergraduate Researcher Honorable Mention
2019 - Undergraduate Research Opportunities Program (UROP) Grant
2018 - NASA SUITS Challenge (proposal ☑ accepted by NASA)
2018 - 2020 - McNair Research Grants
2018 - McNair Scholar

Experience

01/2021 – present	THING Lab Graduate researcher in Transformative Human Interfaces for the Next Generation (THING) Lab Advisor: Dr. Daniel Leithinger (CU)
12/2020 – present	Exertion Games Lab Collaborator on Rakesh Patibanda's "EMS Games" project Advisor: Dr. Florian "Floyd" Mueller (Monash U) & Dr. Elise Van Den Hoven (UoT Sydney)
01/2022 – 08/2022	PhET Interactive Simulations Research Assistant on NSF grant "Inclusively-Designed Sensory Extensions for STEM Inquiry Learning" (Award #2119303) Advisors: Dr. Emily B. Moore (PhET) & Dr. Ann Eisenberg (CU)
05/2021 – 08/2021	Cyborg Crafts Human augmentation / HCI student research group
07/2019 – 07/2022	Debugging by Design Research Assistant on NSF Grant "Debugging by Design" (award #1742081) Advisors: Dr. Ann Eisenberg (CU) & Dr. Mark D Gross (CU).
09/2019 – 07/2020	Google CS Research Mentorship Program (CSRMP) Mentors: Dr. Huisheng Wang (Google) & Sloan Davis (Google)
08/2018 – 08/2020	NASA Spacesuit User Interface Technologies for Students (SUITS) Challenge Hardware lead (2018), outreach lead (2018-2019), and project manager (2019) of a student group that participated in the NASA SUITS challenge (two proposals accepted by NASA) Advisors: Dr. Allison Anderson (CU), Col. James Voss (CU), Dr. Bradley Hayes (CU), Dr. Aaron Johnson (CU), & Angelica Garcia (NASA)
08/2018 – 07/2019	Laboratory for Playful Computation Undergraduate research assistant on NSF grant "Catalyzing Scientific Inquiry and Engineering through Wearable Intersubjective Sensation Devices" (Award #1736051) Advisors: Dr. Mike Eisenberg (CU), Dr. Joe Polman (CU), & Dr. Ben Shapiro (CU)
07/2017 – 07/2020	Craft Tech Lab Undergraduate independent projects funded through TRIO, UROP, and McNair research grants Advisors: Dr. Mike Eisenberg (CU) & Dr. Ann Eisenberg (CU)

Teaching

Summer 2022 Workshop facilitator, "Explore Engineering Science Discovery - Sensory Extension Co-Design Workshop" (ages 14 - 17)
Summer 2022 Workshop facilitator, "Build a Better Book project (BBB) - Sensory Extension Co-Design Workshop" (ages 14 - 17)
Spring 2022 Workshop facilitator, "Rapid Prototyping - T9Hacks" (Undergraduate)
Fall 2021 Teaching assistant, ATLS 3300: Object (Undergraduate)
Fall 2021 Workshop facilitator, "E-Textiles: Sewable Circuits" (Graduate)
Summer 2021 Workshop facilitator, "Smart Garments: Creating e-Textiles" (ages 10 - 14)
Summer 2021 Workshop facilitator, "E-Textiles Camp: Sewing programmable circuits into fabric!" (ages 10 - 14)
Summer 2021 Guest lecturer, ATLS 3300: Object (Undergraduate)
Spring 2019 - 2021 Volunteer, ATLS 5519: Wearable Technologies (Undergraduate & Graduate)

Invited Talks and Panels

Fall 2021 - Invited panelist, "CSRMP Alumni panel", Google CSRMP
Fall 2021 - Invited panelist, "Colorado/Wyoming/Denver Metro LSAMP Visit Day", Louis Stokes Alliances for Minority Participation (LSAMP) program
Spring 2021 - Invited talk, "Cyborg Crafts", Exertion Games Lab
Spring 2021 - Invited talk, "Introduction to Wearable Technologies", T9Hacks
Spring 2021 - Invited panelist, "Demystifying Grad School", McNair Scholars Program (CU Boulder)

Service

Reviewer

2021 - Human Factors in Computing Systems (CHI)
2021 - Interaction Design and Children (IDC)
2021 - CHI Interactivity
2020 - FabLearn ACM

Selected Press Articles

2022 - Hackster.io "Making Magnetic Fields Visible with Light Painting" [↗](#)
2022 - ARDUINO "Use light painting to visualize magnetic fields" [↗](#)
2022 - Digi-Key "A Nose for Art [Maker Update] | Maker.io" [↗](#)
2022 - Hackster.io "Visualizing Smells in a Room with an AI-Powered Nose and Light Painting" [↗](#)
2021 - Computer Research Association (CRA) "Reimagining Human Sensation" [↗](#)
2021 - HACKADAY "FLEXIBLE PROTOTYPING FOR E- TEXTILES THAT DOESN'T COST AN ARM AND A LEG" [↗](#) "
2021 - ARDUINO "This sensory extension puppet lets you detect magnetic fields like a bird" [↗](#) "
2020 - HACKADAY "MAGNETS MAKE PROTOTYPING E-TEXTILES A SNAP" [↗](#)
2020 - Colorado Engineer Magazine "FALL 2019: THE CHANGE ISSUE" [↗](#)
2020 - Amanda Jones "Christian Hill on Transhumanism" [↗](#)
2019 - Gizmodo “猫のきもちがわる？コロラド大学でウェアラブル猫ヒゲが作られる。” [↗](#)
2019 - Victor Lee, R. Benjamin Shapiro “Learning in a digital world - perspectives on interactive technologies for formal and informal education.” A Broad View of Wearables as Learning Technologies: Current and Emerging Applications, pp. 15 - 17. [↗](#)
2019 - ARDUINO TEAM “Experience the world like a cat with this whisker-style sensory extension.” [↗](#)