Chris Hill

chrishillcs@gmail.com chrisnhill.com Google Scholar @4Eyes6Senses

Hello

Chris Hill is a creative technologist, human augmentation researcher, and interaction designer. He uses wearables, human augmentation, and multimodal interfaces to design technologies that enable novel and immersive sensory experiences.

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

Experience

05/2023 – present
Disney Imagineering
Associate R&D Imagineer
Manager: Jonathan Becker

01/2023 – 04/2023
Meow Wolf - Denver
Exhibition Technology, working on current and future exhibition anchors
Manager: Eric Davis

12/2020 – 05/2023
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)

01/2021 – 03/2022
THING Lab
Graduate researcher in Transformative Human Interfaces for the Next Generation (THING) Lab
Advisors: Dr. Daniel Leithinger (CU)

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)

Publications

Grand Challenges in WaterHCI
Florian 'Floyd' Mueller, Maria F. Montoya , Sarah Jane Pell, Leif Oppermann Fraunhofer, Paul H Dietz, Joe Marshall, Scott Bateman, Ian Smith, Swamy Ananthanarayan, Ali Mazalek, Alexander Verni, Alexander Bakogeorge, Mathieu Simonnet, Kirsten Ellis, Nathan Arthur Semertzidis, Winslow Burleson, John Quarles, Steve Mann, **Chris Hill**, Christal Clashing, Don Samitha Elvitigala
In Proceedings of CHI 2024: ACM CHI Conference on Human Factors in Computing Systems. Honolulu, Hawaii. 11-16 May 2024.

Auto-Paízo Games: Towards Understanding the Design of Games that Unify a Player's Physical Body and the Digital World
Rakesh Patibanda, **Chris Hill**, Aryan Saini, Xiang Li, Yuzheng Chen, Shreyas Nisal, Jarrod Knibbe, Elise van den Hoven, Florian 'Floyd' Mueller.
In Proceedings of Computer-Human Interaction in Play (CHI PLAY). 10-13 October 2023 – Stratford, Canada.

Investigating Sensory Extensions as Input for Interactive Simulations
Chris Hill, Casey Hunt, Sammie Crowder, Brett L. Fiedler, Emily B. Moore, Ann Eisenberg.
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, Ruojia 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

Teaching and Workshops

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 - Adafruit "Visualize and Hear Ultrasonic Frequencies With a Third Ear #WearableWednesday"
2022 - Hackster.io "Chris Hill's 'Third Ear' Wearable Lets Your Hear — or See — in Ultrasonic Frequencies"
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.”