Zeyu Yan

PH.D. candidate at computer science, University of Maryland (advised by Dr. Huaishu Peng)
Email: zeyuy@umd.edu | Website: zeyuyan.com | Google Scholar

Research: Reprogramming of Physical Matter through Computational Fabrication

I imagine a future where physical matter can be reprogrammed as effortlessly as digital information. To move toward this goal, I **create computational methods, invent hardware systems, and design new material compositions** that enable the making and transformation of interactive artifacts in both their physical form and computational function. My research draws from HCI, computer science, engineering, and materials science, **integrating technical innovation with human-centered empirical inquiry and formative study**. My work is primarily disseminated through leading HCI venues such as **ACM CHI and UIST**.

Education

2019-present PH.D. in Computer Science, University of Maryland, College Park
2017-2019 M.S. in Mechanical Engineering, Carnegie Mellon University
2013-2017 B.S. in Mechanical Engineering, Zhejiang University

Publications

[P. 14] DISSOLVPCB: Fully Recyclable 3D-Printed Electronics Using Liquid Metal Conductors and PVA Substrates.
Zeyu Yan, SuHwan Hong, Josiah Hester, Tingyu Cheng, Huaishu Peng.
ACM UIST 2025 (doi) Best Paper (top 0.5%)

[P. 13] PCB RENEWAL: Iterative Reuse of PCB Substrates for Sustainable Electronic Making.
Zeyu Yan, Advait Vartak, Jiasheng Li, Zining Zhang, Huaishu Peng.
ACM CHI 2025 (doi) Best Paper Honorable Mention (top 5%)

[P. 12] Make Making Sustainable: Exploring Sustainability Practices, Challenges, and Opportunities in Making Activities.
Zeyu Yan, Mrunal Dhaygude, Huaishu Peng.
ACM CHI 2025 (doi)

[P. 11] Cybernetic Marionette: Channeling Audience Agency Through a Wearable Robot in a Live Dancer-Robot Duet.
Anup Sathya, Jiasheng Li, **Zeyu Yan**, Adriane Fang, Bill Kules, Jonathan David Martin, Huaishu Peng.
ACM DIS 2025 (doi)

[P. 10] Comparing Vibrotactile and Skin-Stretch Haptic Feedback for Conveying Spatial Information of Virtual Objects to Blind VR Users.
Jiasheng Li, Zining Zhang, **Zeyu Yan**, Yuhang Zhao, Huaishu Peng.
IEEE VR 2025 (doi)

[P. 9] SolderlessPCB: Reusing Electronic Components in PCB Prototyping through Detachable 3D Printed Housings. 3DPC Pioneer of the Decade Finalist
Zeyu Yan, Jiasheng Li, Zining Zhang, Huaishu Peng. 2024.
ACM CHI 2024 (doi) Winner of ACM CHI Special Recognition for Sustainable Practices (single winner)

[P. 8] Rhapso: Automatically Embedding Fiber Materials into 3D Prints for Enhanced Interactivity

Daniel Ashbrook, Wei-Ju Lin, Nicholas Bentley, Diana Soponar, **Zeyu Yan**, Valkyrie Savage, Lung-Pan Cheng, Huaishu Peng, and Hyunyoung Kim.
ACM UIST 2024 (doi)

[P. 7] JetUnit: Rendering Diverse Force Feedback in Virtual Reality Using Water Jets.
Zining Zhang, Jiasheng Li, **Zeyu Yan**, Huaishu Peng.
ACM UIST 2024 (doi)

[P. 6] 3D printing Magnetophoretic Display. 3DPC Pioneer of the Decade Finalist
Zeyu Yan, Hsuanling Lee, Liang He, Huaishu Peng.
ACM UIST 2023 (doi)

[P. 5] Toucha11y: Making Inaccessible Public Touchscreens Accessible.
Jiasheng Li, **Zeyu Yan**, Arush Shah, Jonathan Lazar, and Huaishu Peng.
ACM CHI 2023 (doi) Best Paper Honorable Mention (top 5%)

[P. 4] Fibercuit: Prototyping High-Resolution Flexible and Kirigami Circuits with a Fiber Laser Engraver. Winner of Core 77 Student Notable Tool Award
Zeyu Yan, Anup Sathya, Sahra Yusuf, Jyh-Ming Lien, Huaishu Peng.
ACM UIST 2022 (doi)

[P. 3] TangibleGrid: Tangible Web Layout Design for Blind Users.
Jiasheng Li, **Zeyu Yan**, Ebrima Haddy Jarjue, Ashrith Shetty, Huaishu Peng.
ACM UIST 2022 (doi)

[P. 2] FabHydro: Printing Interactive Hydraulic Devices with an Affordable SLA 3D Printer.
Zeyu Yan and Huaishu Peng.
ACM UIST 2021 (doi)

[P. 1] 4DMesh: 4D Printing Morphing Non-Developable Mesh Surfaces.
Guanyun Wang, Humphrey Yang, **Zeyu Yan**, Nurcan Gecer Ulu, Ye Tao, Jianzhe Gu, Levent Burak Kara, and Lining Yao.
ACM UIST 2018 (doi)

Extended Abstracts

[EA. 8] Demonstration of JetUnit: Rendering Diverse Force Feedback in Virtual Reality Using Water Jets.
Zining Zhang, Jiasheng Li, **Zeyu Yan**, Jun Nishida, Huaishu Peng.
ACM UIST 2024 (Demo)

[EA. 7] Sustainable in-house PCB prototyping.
Zeyu Yan.
ACM UIST 2024 (Doctoral Symposium)

[EA. 6] Demonstration of 3D printed Magnetophoretic Display.
Zeyu Yan, Hsuanling Lee, Liang He, Huaishu Peng.
ACM UIST 2023 (Demo)

[EA. 5] Future Paradigms for Sustainable Making.
Zeyu Yan, Jasmine Lu, Tingyu Cheng, Pedro Lopes, Huaishu Peng.
ACM UIST 2023 (Workshop) Leading Workshop Organizer

[EA. 4] Fibercuit: Prototyping High-Resolution Flexible and Kirigami Circuits with a Fiber Laser Engraver.
Zeyu Yan, Anup Sathya, Sahra Yusuf, Jyh-Ming Lien, Huaishu Peng.
UIST 2022 (Demo) People's Best demo award

[EA. 3] Demonstration of TangibleGrid: a Tangible Web Layout Design Tool for Blind Users.
Jiasheng Li, **Zeyu Yan**, Ebrima Haddy Jarjue, Ashrith Shetty, Huaishu Peng.
ACM UIST 2022 (Demo)

[EA. 2] Demonstration of FabHydro: 3D Printing Techniques for Interactive Hydraulic Devices with an Affordable SLA 3D Printer.
Zeyu Yan and Huaishu Peng.
ACM UIST 2021 (Demo)

[EA. 1] Towards On-the-wall Tangible Interaction: Using Walls as Interactive, Dynamic, and Responsive User Interface.
Zeyu Yan, Anup Sathya, Pedro Carvalho, Yongquan Hu, Annan Li, and Huaishu Peng.
ACM CHI 2020 (poster)

Non-Peer-Reviewed Publications

[2] Biomimetic Morphing Helix.
Danli Luo, Guanyun Wang, **Zeyu Yan**, Jack Forman, Lining Yao.
SCF 2019 (Poster)

[1] FoamFactor: Hydrogel-Foam Composite with Tunable Stiffness and Compressibility.
Humphrey Yang, **Zeyu Yan**, Danli Luo, Lining Yao.
2019 (Research Artical)

Awards

2025 ACM UIST Best Paper (link)
2025 ACM UIST Special Recognition for Sustainability in Demo
2025 UMD HCIL Maryland Way Award for Research Excellence
2025 ACM CHI Best Paper Honorable Mention
2025 3DPC Pioneer of the Decade Finalist (Link)
2024 Winner of ACM CHI Special Recognition for Sustainable Practices (Link)
2023 UMD's Jacob K. Goldhaber Travel Grant
2023 ACM CHI Best Paper Honorable Mention
2022 Winner of Core 77 Student Notable Tool Award (Link)
2022 ACM UIST People's Best Demo (Demo)
2022 UMD's Outstanding Teaching Assistant Award

Invited Talks

2025 [T.9] UMD, HCIL BBL series.
2025 [T.8] UC Berkeley, hosted by Prof. Lining Yao.
2025 [T.7] Gerogia Tech, hosted by Prof. Josiah Hester.
2024 [T.6] Emory University, hosted by Prof. Kristin Williams.
2024 [T.5] Open Hardware Summit (CA).
2024 [T.4] MIT CSAIL (US), hosted by Prof. Stefanie Muller.
2023 [T.3] UMD (US), HCIL Symposium.
2022 [T.2] UMD (US), HCIL Symposium.
2021 [T.1] MIT CSAIL (US), hosted by Prof. Stefenie Muller.

Academic Service & Outreach

Organizer	ACM TEI Web Chair 2026 (Link) ACM UIST Sustainability Chair 2025 (Link) ACM UIST Proceeding Chair 2024 (Link), ACM UIST Proceeding Chair 2023 (Link)
Session Chair	ACM CHI 2024, ACM UIST 2024
Reviews	ACM CHI 2023–2025, ACM UIST 2022–2024, ACM CHI LBW 2022–2024, ACM TEI Work in Progress, ACM DIS 2023
Student Volunteer	CHI 2022, UIST 2022
Exhibitor	Rockville Science Day 2024 (link)

Teaching

2025	Graduate TA for CMSC498J Human-Robot Interaction, Device Prototyping, and Embodied AI
2020-2024	Graduate TA for CMSC838J/CMSC740 Interactive Technologies in Human-Computer Interaction
2024	Graduate TA for CMSC839A Embodied Media Design
2021, 2023	Graduate TA for CMSC434 Introduction to Human-Computer Interaction
2019, 2022	Graduate TA for CMSC131 Object-Oriented Programming

Selected Press Coverage

[16] DissolvPCB enables fully recyclable 3D-printed circuit boards with liquid metal conductors - *3D Printing Industry* *link*

[15] 3D-Printed PCB Made with PVA and Liquid Metal Is Fully Recyclable - *Tom's Hardware* *link*

[14] Researchers 3D Print Circuit Board That Can Be Dissolved in Water - *VoxelMatters* *link*

[13] PCBs Without Soldering - *Make:* *link*

[12] World's first fully 3D-printed microscope made in under 3 hours - *NewScientist* *link*

[11] A Solderless, Soluble Circuit Board - *Hackaday* *link*

[10] No Solder! Squeeze Your Parts To The PCB - *Hackaday* *link*

[9] Fibercuit Makes Custom Flexible Circuits With a Fiber Laser Engraver - *ALL3DP* *link*

[8] Fibercuit: DIY Aesthetically Pleasing, Flexible, and Kirigami Circuits - *Core 77* *link*

[7] UMD Computer Scientists Advance Circuit Design with Fibercuit - *UMD Department of Computer Science* *link*

[6] Fibercuit Laser-Cuts Prototype PCBs and Forms 3D Kirigami Objects - *hackster.io* *link*

[5] FIBER LASER YOUR WAY TO FLEXIBLE PCB SUCCESS! - *hackaday* *link*

[4] Clever Hack Uses Cheap Resin Printers To Make Flexible Hydraulic Actuators 3D PRINTING & IMAGING - *Make:* *link*

[3] UMD CS Graduate Student's Innovative Technology for the Visually Impaired Honored at CHI 2023 Conference - *UMD Department of Computer Science* *link*

[2] System Breaks Down Barriers for Blind Web Designers - *newswires* *link* - *UMD* *link*

[1] Huaishu Peng, Anup Sathya, Zeyu Yan // Hackster Café - *hackster.io* *link*

Last updated: November 3, 2025