

# Huaishu Peng

huaishu@cs.umd.edu  
www.huaishu.me  
<https://smartlab.cs.umd.edu/>  
412.916.7506

## EDUCATION

- 2012 - 2019    Cornell University, Ithaca  
Ph.D. in Information Science  
Area of Study: Human-computer Interaction  
Thesis committee: Prof. François Guimbretière,  
Prof. Steve Marschner and Prof. Malte Jung
- 2010 - 2012    Carnegie Mellon University, Pittsburgh  
Master of Tangible Interaction Design  
Advisor: Prof. Mark D Gross
- 2006 - 2010    Beihang University, Beijing  
B.E. Software Engineering (with Honors)

## EMPLOYMENT

- 2019 - Present    University of Maryland, College Park  
Assistant Professor at the Department of Computer Science  
Faculty Member of HCIL and UMIACS
- 2020 - Present    University of Maryland, College Park  
Affiliate Assistant Professor at the College of Information Studies

## PUBLICATIONS

\* - Author worked under my supervision in this project.

- CONFERENCE AND JOURNAL PAPER    Zeyu Yan\*, Anup Sathya\*, Sahra Yusuf, Jyh-Ming Lien, **Huaishu Peng**. Fibercuit: Prototyping High-Resolution Flexible and Kirigami Circuits with a Fiber Laser Engraver, UIST 2022, [Full Paper, 26.3% acceptance rate]
- Jiasheng Li\*, Zeyu Yan\*, Ebrima Jarjue\*, Ashrith Shetty\*, **Huaishu Peng**. TangibleGrid: Tangible Web Layout Design for Blind Users, UIST 2022, [Full Paper, 26.3% acceptance rate]
- Liang He, Xia Su, **Huaishu Peng**, Jeffrey Lipton, Jon Froehlich. Kinergy: Creating 3D Printable Motion using Embedded Kinetic Energy, UIST 2022, [Full Paper, 26.3% acceptance rate]
- Anup Sathya\*, Jiasheng Li\*, Tauhidur Rahman, Ge Gao, **Huaishu Peng**. Calico: Relocatable On-Cloth Wearables with Fast, Reliable, and Precise Locomotion, IMWUT/Ubicomp 2022, [Full Paper]

Zeyu Yan\*, **Huaishu Peng**. FabHydro: Printing Interactive Hydraulic Devices with an Affordable SLA 3DPrinter. UIST 2021, [Full paper]

Jason Orlosky, Misha Sra, Kenan Bektaş, **Huaishu Peng**, Jeeun Kim, Nataliya Kos'myna, Tobias Hollerer, Anthony Steed, Kiyoshi Kiyokawa, Kaan Akşit. Telelife: The future of remote living. Frontiers in Virtual Reality, 2021, [Full paper]

Yue Hao, Peiwen J Ma, **Huaishu Peng**, Edwin A Peraza Hernandez, Jyh-Ming Lien. Metal Blossom: Laser Forming Complex and Freeform Metal Structures Imitating Flower Blooming, 2021, arXiv preprint arXiv:2111.15083

Md. Farhan Tasnim Oshim, Julian Killingback, Dave Follette, **Huaishu Peng**, Tauhidur Rahman. MechanoBeat: Monitoring Interactions with Everyday Objects using 3D Printed Harmonic Oscillators and Ultra-Wideband Radar. UIST 2020, [Full paper]

Liang He, **Huaishu Peng**, Michelle Lin, Ravikanth Konjeti, François Guimbretière, Jon Froehlich. Ondulé: Designing and Controlling 3D Printable Springs. UIST 2019, [Full paper, 24% acceptance rate]

Stefanie Mueller, Anna Seufert, **Huaishu Peng**, Robert Kovacs, Kevin Reuss, François Guimbretière, Patrick Baudisch. FormFab: Towards Shape Exploration in Interactive Fabrication. TEI 2019, [Full paper, 33% acceptance rate]

**Huaishu Peng**, Jimmy Briggs, Cheng-Yao Wang, Kevin Guo, Joseph Kider, Stefanie Mueller, Patrick Baudisch, François Guimbretière. RoMA: Interactive Fabrication with Augmented Reality and a Robotic 3D Printer. CHI 2018, [Full paper, 25.7% acceptance rate]

**Huaishu Peng**, François V. Guimbretière, James McCann, Scott E. Hudson. A 3D Printer for Interactive Electromagnetic Devices. UIST 2016, [Full paper, 21% acceptance rate]

**Huaishu Peng**, Rundong Wu, Steve Marschner, François V. Guimbretière. On-the-Fly Print: Incremental Printing while Modeling. CHI 2016, [Full paper, 23% acceptance rate]

Rundong Wu, **Huaishu Peng**, Steve Marschner, François V. Guimbretière. Printing Arbitrary Meshes with a 5DOF Wireframe Printer. TOG/SIGGRAPH 2016, [Full paper, 25% acceptance rate]

**Huaishu Peng**, Amit Zoran, François V. Guimbretière. D-Coil: A Hands-on Approach to Digital 3D Models Design. CHI 2015, [Full paper, 23% acceptance rate]



**Huaishu Peng**, Jennifer Mankoff, Scott E. Hudson, James McCann. A Layered Fabric 3D Printer for Soft Interactive Objects. CHI 2015, [Full paper, 23% acceptance rate | Best Paper Nominee | Top5%]

Tauhidur Rahman, Alexander T. Adams, Mi Zhang, Erin Cherry, Bobby Zhou, **Huaishu Peng**, and Tanzeem Choudhury. BodyBeat: A Mobile System for Sensing Non-speech Body Sounds. MOBISYS 2014, [Full paper, 14% acceptance rate]

MAGAZINE ARTICLE	<b>Huaishu Peng</b> , Scott E. Hudson, Jennifer Mankoff, James McCann. Soft Printing with Fabric, XRDS Spring 2016.
POSTER AND DEMOS	<p>Mustafa Doga Dogan, Patrick Baudisch, Hrvoje Benko, Michael Nebeling, <b>Huaishu Peng</b>, Valkyrie Savage, Stefanie Mueller. Fabricate It or Render It? Digital Fabrication vs. Virtual Reality for Creating Objects Instantly. CHI 2022 Panel.</p> <p>Kenan Bektas, Jeeun Kim, <b>Huaishu Peng</b>, Kiyoshi Kiyokawa, Anthony Steed, Tobias Höllerer, Nataliya Kosmyna, Kaan Akşit, Misha Sra, Jason Orlosky. Telelife: A Vision of Remote Living in 2035. CHI 2022 Panel.</p> <p>Zeyu Yan*, Anup Sathya*, Pedro Carvalho*, Yongquan Hu*, Annan Li*, <b>Huaishu Peng</b>. Towards On-the-wall Tangible Interaction: Using Walls as Interactive, Dynamic, and Responsive User Interface. CHI 2021 Extended Abstract.</p> <p>Zeyu Yan*, <b>Huaishu Peng</b>. Demonstration of FabHydro: 3D Printing Techniques for Interactive Hydraulic Devices with an Affordable SLA 3D Printer. UIST 2021 Adjunct Publication</p> <p>Jennifer Healey, Duotun Wang*, Curtis Wigington, Tong Sun, <b>Huaishu Peng</b>. A Mixed-Reality System to Promote Child Engagement in Remote Intergenerational Storytelling. ISMAR 2021.</p> <p>Duotun Wang*, Jennifer Healey, Jing Qian, Curtis Wigington, Tong Sun, <b>Huaishu Peng</b>. Lets Make A Story Measuring MR Child Engagement. CHI 2021 Workshop.</p> <p>Ashrith Shetty*, Ebrima Jarjue*, <b>Huaishu Peng</b>. Tangible Web Layout Design for Blind and Visually Impaired People: An Initial Investigation. UIST 2020.</p> <p>Liang He, <b>Huaishu Peng</b>, Joshua Land, Mark D. Fuge, and Jon E. Froehlich. Designing 3D-Printed Deformation Behaviors Using Spring-Based Structures: An Initial Investigation. UIST 2017.</p> <p>Liang He, Joshua Land, <b>Huaishu Peng</b>, Mark D. Fuge, and Jon E. Froehlich. Early Explorations of Deformable Interactive Designs with 3D-Printed Springs. SCF 2017.</p> <p>Dongwook Yoon, <b>Huaishu Peng</b>, and Bin Xu. Let me show you what I read: exploring referencing strategies for e-books. CHI 2013.</p> <p><b>Huaishu Peng</b>. Algo.Rhythm: Computational Thinking through tangible music device. TEI 2012. [Graduate Student Consortium]</p> <p><b>Huaishu Peng</b>. TouchSound: Making Sounds with Everyday Objects. TEI 2011. [Graduate Student Consortium]</p>
PATENT	<p>James McCann, <b>Huaishu Peng</b>, Scott E. Hudson, Jen Mankoff. Three-Dimensional Printer with an Inverted Cutting Surface and a Movable Platform for Creating Layered Objects. US Patent 10,160,165</p> <p>Francois Guimbretiere, <b>Huaishu Peng</b>, Stephen Marschner, Rundong Wu. Methods for Incremental 3D Printing and 3D Printing Arbitrary Wireframe Meshes. US Patent App. 17/516,154</p>

## **GRANT AND FUNDS**

- 2022 ArtsAMP Collaborative Grants award. \$15,000 in total.
- 2020 Maryland New Direction Fund. \$25,000  
Adobe Research Gift. \$20,000.
- 2019 NSF. Co-PI. CUE Ethics: A Curricular Design Community for Broadening Participation through Computing in the Arts. \$ 350,000 in total.

## **PREVIOUS RESEARCH EXPERIENCE**

- OCT 2015 – DEC 2015 Disney Research, Pittsburgh, PA  
Research Associates, advised by Scott Hudson & James McCann.  
5DOF 3D printer for interactive devices.
- JUN 2015 – AUG 2015 Hasso-Plattner-Institut, Potsdam, Germany  
Visiting Researcher, advised by Patrick Baudisch.  
Robotic arm based interactive fabrication tool.
- MAY 2014 – AUG 2014 Disney Research, Pittsburgh, PA  
Research Associates, advised by Scott Hudson & James McCann.  
3D printer using fabric sheets as building material.
- SEP 2011 – MAY 2012 Computational Design Lab@CMU, Pittsburgh, PA  
Graduate Researcher, advised by Mark Gross.  
Novel interaction for pervasive computing and tangible interface.
- JUN 2011 – AUG 2011 Microsoft Research Asia, Beijing, China  
HCI Group Intern, advised by Darren Edge.  
Emotional IO through physical prototypes.
- DEC 2010 – DEC 2011 BirdBrain Technologies LCC, Pittsburgh, PA  
Mobile Designer and Developer.  
Mobile interaction methods for consumer robots.
- NOV 2009 – MAY 2010 Chinese Academy of Sciences, Beijing, China.  
HCI Lab Research Assistant, advised by Danli Wang.  
Tangible interface for kids.

## **IVITATED TALKS AND GUEST LECTURES**

- 2021 University of Copenhagen. Hosted by  
Prof. Daniel Ashbrook and Dr. Hyunyoung Kim. Computer Science Seminar.
- University of Calgary. Hosted by Hosted by  
Prof. Ryo Suzuki. ILab Speaker Series.

- 2020 Texas A&M University. Hosted by Prof. Jeeun Kim. CSCE 681 Guest Lecture.
- 2019 American University. Hosted by Prof. Bei Xiao. Computer Science Seminar.
- 2018 University of Minnesota. Hosted by Prof. Lana Yarosh. Computer Science Colloquia.
- Clemson University. Hosted by Prof. Brygg Ullmer. School of Computing Seminar.
- University of Wisconsin–Madison. Hosted by Prof. Bilge Mutlu. Computer Science Seminar.
- University of Maryland, College Park. Hosted by Prof. Michelle Mazurek. Computer Science Seminar.
- Pennsylvania State University. Hosted by Prof. Dinghao Wu. IST Seminar.
- Virginia Tech. Hosted by Prof. Douglas Bowman. Computer Science Seminar.
- University of Utah. Hosted by Prof. Erik Brunvand. Computer Science Seminar.
- University of California, Irvine. Hosted by Prof. Yunan Chen. Information and Computer Sciences Seminar.
- University of California, Santa Barbara. Hosted by Prof. Marko Peljhan. MAT Seminar Series.
- Cornell University  
Future User Interfaces Guest Lecture.
- Chinese Academy of Science. Hosted by Prof. Guozhong Dai and Prof. Xiangmin Fan. HCI Seminar.
- 2017 MIT CSAIL. Hosted by Prof. Wojciech Matusik. Graphic Seminar.
- Columbia University. Hosted by Prof. Changxi Zheng. Vision and Graphics Seminar.
- McGill University. Hosted by Prof. Jeremy R. Cooperstock. Graduate Seminar.
- University of Maryland, College Park. Hosted by Prof. Jon Froehlich. Makebility Lab.
- Cornell Tech. Hosted by Prof. Shiri Azenkot. HCI Lab.
- Rochester Institute of Technology. Hosted by Prof. Daniel Ashbrook. FET Lab.

- Zhejiang University. Hosted by Prof. Lingyun Sun. International Design Institute.
- 2016 Osaka University. Hosted by Prof. Hideyuki Nakanishi. Symbiotic Media Group.
- 2015 Carnegie Mellon University Programming Usable Interface Guest Lecture.
- 2014 Disney Research Pittsburgh HCI Seminar.
- 2012 Microsoft Research Asia. Hosted by Dr. Darren Edge. Human-Computer Interaction Group.

## SELECTED MEDIA PRESS

- 2021 MAKE Magazine. Clever Hack Uses Cheap Resin Printers To Make Flexible Hydraulic Actuators.
- 2018 Cornell. Augmented Reality Takes 3-D Printing to Next Level.  
 TechCrunch. Combining Augmented Reality 3D Printing and a Robotic Arm to Prototype in Real Time.  
 Fastcompany. This Designer And Robot Working In Perfect Unison Is The Future Of Making.  
 Wired Italy. Stampa 3d, come saltare la progettazione usando la realtà aumentata.  
 Designboom. Design in 3D Augmented Reality and This Robotic Arm Physically Prototypes it.  
 Gizmodo Japan. AR越しにプロトタイプを3Dプリントさせるロボット・アーム「RoMA」.
- 2016 Engadget. Cornell Researchers Create 3D printer that Builds as You Work.  
 Hackaday.com. 3D Printing and Modelling on the Fly.  
 MAKE Magazine. New 5-Axis 3D Printer Creates Simple Wire Frame Models in Real Time.  
 Futurism. New 3D Printer Lets You Make Changes “On-The-Fly”.
- 2015 TechCrunch. Disney’s New 3D Printer Prototype Makes Huggable Things Out Of Fabric Instead Of Hard Plastic.  
 Gizmodo. Disney Made a 3D Printer That Creates Soft Objects Using Fabric.  
 NBC News. This Disney 3-D Printer Uses Fabric to Create Soft Objects.  
 Engadget. Disney Research Has a 3D Printer that Can Sew Bunnies for You.  
 CNET. Disney Research's New 3D Printer Can Print in Fabric.  
 3dprint.com. D-Coil — A 3D Wax Printing Pen That Also Builds Digital Models on the Fly.  
 3ders. Researchers Develop D-Coil Handheld Wax Extruder That Makes 3D Modeling Easier than Ever Before.

- 2014 MIT Technology Review. Wearable Self-Tracking Tool Listens for Yawns, Coughs, and Munches.  
New Scientist. Listen to Sounds Inside the Body to Monitor Health.
- 2012 Core77. Honey, I Shrunk the CNC Machine: "Piccolo" Is the World's Smallest CNC Platform.  
Wired Design. Fetish: Transparent technology and see-through kit that reveal their inner workings.  
Fastcodesign. Pocket-Sized Drawing Robot Costs Less Than 70.  
Designboom. Diatom studio: piccolo drawing bot.  
MAKE Magazine. Piccolo, a Mini CNC Artbot.

## **A C A D E M I C   S E R V I C E S**

- CHAIRING** ACM MobileHCI 2022, Accessibility Co-Chair  
ACM UIST 2018-2019, Poster Co-Chair  
ACM SCF 2017, Web Chair  
ACM CHI 2017, Presentation Section Chair
- PROGRAM COMMITTEE** ACM CHI 2019-2023, Program Committee Member  
ACM CHI 2018, LBW Program Committee Member  
CHINESE CHI 2018 Program Committee Member  
ACM CHI 2017, LBW Program Committee Member
- REVIEWING** CHI Paper Proceedings, 2014 – 2019  
UIST Paper Proceedings, 2014 – 2022  
TEI Paper Proceedings, 2013, 2014, 2018, 2019
- WORKSHOP HOST** Make Your Own Piccolo, TEI 2013, Spain
- STUDENT VOLUNTEER** TEI 2012
- UNIVERSITY SERVICE** Hiring Representative, Information Science, 2016 - 2017

## **A W A R D S**

- 2021 UMD's Graduate Faculty Mentor of the Year Award Nomination.
- 2019 Finalist, 3D Pioneers Challenge. International competition for additive manufacturing technologies
- 2014 - 2017 Cornell Graduate Student Travel Grant
- 2015 CHI Best Paper Honorable Mentions Award
- 2013 No 1 Winner of Student Design Competition TEI

- 2012 TEI Doctoral Symposium Travel Grant  
Education Award at Maker Faire
- 2011 TEI Doctoral Symposium Travel Grant  
Finalist of Student Design Competition TEI
- 2016 - 2010 Beihang Academic Scholarship

## **T E A C H I N G**

- Spring 2021 CMSC434: Introduction to Human-Computer Interaction  
Fall 2019  
Fall 2020-21 CMSC838J/CMSC730: Interactive Technology for HCI  
SPRING 2019-20  
SPRING 2013-14 INFO 4320: Rapid Prototyping and Physical Computing  
Graduate Teaching Assistant for Prof. François Guimbretière
- FALL 2013 CS 1110: Introduction to Computing Using Python  
Graduate Teaching Assistant for Walker White
- FALL 2012 CS 4300: Information Retrieval  
Graduate Teaching Assistant for Prof. William Y. Arms

## **M E N T O R I N G**

- 2022 Zining Zhang, Ph.D. at University of Maryland, College Park. Advisor.  
Sumbul Zehra. Master at University of Maryland, College Park.  
Yvonne Zhou. Master at University of Maryland, College Park.
- 2021 Jiasheng Li, Ph.D. at University of Maryland, College Park. Advisor.  
Md. Farhan Tasnim Oshim, Ph.D. at University of Massachusetts Amherst.  
Committee member.  
Anup Sathya Sai kumar, Master at University of Maryland, College Park.  
Committee Chair.  
Callie Kim. Master at University of Maryland, College Park.  
Duotun Wang. Master at University of Maryland, College Park.  
Pranav Jain. Master at University of Maryland, College Park.  
Daniel Brown. Master at University of Maryland, College Park.  
Arush Shah. Undergraduate at University of Maryland, College Park.  
Hugo Burbelo. Undergraduate at University of Maryland, College Park.  
Hrithik Bansal. Undergraduate at University of Maryland, College Park.
- 2020 Ashrith Shetty, Master at University of Maryland, College Park.  
Committee Co-Chair.  
Md. Farhan Tasnim Oshim, Master at University of Massachusetts Amherst.  
Committee member.  
Rijuta Dighe. Master at University of Maryland, College Park.  
Yuval Reiss. Master at University of Maryland, College Park.  
Pedro Carvalho. Master at University of Maryland, College Park.



2019 Zeyu Yan, Ph.D. at University of Maryland, College Park. Advisor.  
Sriram Karthik Badam, Ph.D. at University of Maryland, College Park. Dissertation  
Committee.  
Tanaya Jha. Highschool summer intern. Poolesville High School.

2016 - 2018 Cheng-Yao Wang, Ph.D. at Cornell University.  
James Briggs, M.Sc. at Cornell University.  
AR interface for interactive fabrication. CHI 18.  
Co-mentoring with François Guimbretière.  
Christine Geeng. Undergraduate at Cornell University.  
Nathaniel Kwok. Undergraduate at Cornell University.  
Kevin Guo. Undergraduate at Cornell University.  
Xinyi Wang. Undergraduate at Cornell University.  
Anita Wu. Undergraduate at Cornell University.  
Maggie Zhe. Undergraduate at Cornell University.  
Kevin Ma. Undergraduate at Cornell University.  
Xiaoyan Wu. Undergraduate at Cornell University.