

Huaishu Peng

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RESEARCH INTEREST

My research interest lies in the **technical aspects of human-computer interaction (HCI)** with a focus on personal fabrication.

I envision that in the future 1) people will **design both the form and the function** of everyday objects and 2) a personal fabrication machine will **construct not only the 3D appearance, but also the interactivity of its prints.**

EDUCATION

2012 – PRESENT

Cornell University

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, PA

Master of Tangible Interaction Design

Advisor: Prof. Mark D Gross

2006 - 2010

Beihang University (BUAA), Beijing

B.E. Software Engineering (with Honors)

PUBLICATIONS

CONFERENCE PAPER

Huaishu Peng, Jimmy Briggs, Cheng-Yao Wang, Kevin Guo, Joseph Kider, Stefanie Mueller, Patrick Baudish, François Guimbretière. RoMA: Interactive Fabrication with a Robotic Arm 3D Printer. CHI 2018, [Accepted, to appear]

Huaishu Peng, François V. Guimbretière, James McCann, Scott E. Hudson. A 3D Printer for Interactive Electromagnetic Devices. UIST 2016, [Full paper, 20% 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]

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%]

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]

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

Stefanie Mueller, Anna Seufert, **Huaishu Peng**, Robert Kovacs, Kevin Reuss, Tobias Wollowski, François Guimbretière, and Patrick Baudisch. Tightly Coupled Interactive Fabrication: Bringing the Ability to Explore a Design Space Back into Personal Fabrication. TOCHI [Under review]

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]

CONFERENCE PAPER
IN PREPARATION

Liang He, **Huaishu Peng**, Joshua Land, Mark D. Fuge, and Jon E. Froehlich. Ondulé: Designing 3D-Printed Deformable Objects with Spring-Based Structures. [In preparation for UIST 2018]

MAGAZINE ARTICLE

Huaishu Peng, Scott E. Hudson, Jennifer Mankoff, James McCann. Soft Printing with Fabric, XRDS Spring 2016.

POSTER AND DEMOS

Liang He, **Huaishu Peng**, Joshua Land, Mark D. Fuge, and Jon E. Froehlich. Designing 3D-Printed Deformation Behaviors Using Spring-Based Structures: An Initial Investigation. UIST 2017.

Liang He, Joshua Land, **Huaishu Peng**, Mark D. Fuge, and Jon E. Froehlich. Early Explorations of Deformable Interactive Designs with 3D-Printed Springs. SCF 2017.

Dongwook Yoon, **Huaishu Peng**, and Bin Xu. Let me show you what I read: exploring referencing strategies for e-books. CHI 2013.

Huaishu Peng. Algo.Rhythm: Computational Thinking through tangible music device. TEI 2012. [Graduate Student Consortium]

Huaishu Peng. TouchSound: Making Sounds with Everyday Objects. TEI 2011. [Graduate Student Consortium]

PATENT James McCann, **Huaishu Peng**, Scott E. Hudson, Jen Mankoff. Three-Dimensional Printer with an Inverted Cutting Surface and a Movable Platform for Creating Layered Objects. US Patent App. 14/679,794

Francois Guimbretiere, **Huaishu Peng**, Stephen Marschner, Rundong Wu. Methods for Incremental 3D Printing and 3D Printing Arbitrary Wireframe Meshes. US Patent App. US17/27816

P R O F E S S I O N A L E X P E R I E N C E

- 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.

I N V I T E D T A L K

- 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**
- 2012 **Microsoft Research Asia.** Hosted by Dr. Darren Edge. Human-Computer Interaction Group.

SELECTED MEDIA PRESS

- 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 UIST 2018, Poster Co-Chair
ACM SCF 2017, Web Chair
ACM CHI 2017, Presentation Section Chair
- PROGRAM COMMITTEE 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 – 2018
UIST Paper Proceedings, 2014 – 2017
TEI Paper Proceedings, 2013, 2014, 2018
- 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

- 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
2012 Education Award at Maker Faire

2011 TEI Doctoral Symposium Travel Grant
2011 Finalist of Student Design Competition TEI
2016 - 2010 Beihang Academic Scholarship

T E A C H I N G

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

2016 NOV - PRESENT 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.

2016 DEC - PRESENT Liang He, Ph.D. at University of Washington.
Computational fabrication design tool. UIST 18 in preparation.
Co-mentoring with Jon E. Froehlich.

UNDERGRADUATES Christine Geeng, Nathaniel Kwok,
Kevin Guo, Xinyi Wang,
Anita Wu, Maggie Zhe,
Kevin Ma, Xiaoyan Wu

References available upon request.