LIANG HE

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My particular research interest in the field of Human-Computer Interaction is ***Design and Fabrication Techniques for Creativity, Interactivity, and Accessibility***. My research approach is to loop the material and mechanical properties of existing things in the pipeline of computational fabrication, with a focus on the development and adaption of design tools and supporting hardware.

EDUCATION

2017 - Present **University of Washington, Seattle, WA**

2015 - 2017 **University of Maryland, College Park, MD**
Ph.D. student in Computer Science (Human-Computer Interaction).
Advised by Prof. Jon E. Froehlich.

2013 - 2015 **Carnegie Mellon University, PA**
M.S. in Computational Design.
Thesis: SqueezaPulse - Adding Interactive Input Using Passive Pulses of Air

2010 - 2013 **University of Chinese Academy of Sciences (UCAS), Beijing**
M.S. in Computer Science and Technology. Advised by Prof. Danli Wang.

2006 - 2010 **Beihang University (BUAA), Beijing**
B.Eng. in Software Engineering.

FELLOWSHIP/AWARDS

SPRING 2017 **Best Paper Award**, CHI'17

FALL 2015, 2016 **Dean's fellowship**, Department of Computer Science, UMD

SPRING 2016 **Best Late-Breaking Work Paper Award**, CHI'16

FALL 2015 **UIST '15 Student Innovation Contest** (4th place).

FALL 2014 **UIST'14 Student Innovation Contest** (1st Most Creative Award).

SPRING 2015 **Honorable Mentions Award**, CHI'15

SPRING 2012 **G-Startup 2012 Seed Stage** in Global Mobile Internet Conference '12 (1st Startup)

SPRING 2011 **Software Design, Microsoft Imagine Cup** Local Final (2nd place)

PUBLICATIONS

CONFERENCE REFEREED PAPER

Kazemitabaar, M., McPeak, J., Jiao, A., **He, L.**, Outing, T., and Froehlich, J. MakerWear: A Tangible Approach to Interactive Wearable Creation for Children. In Proceedings of CHI '17 on Human Factors in Computing Systems. [Acceptance Rate: 25%] **Best Paper Award [Top 1%]**

He, L., Laput, G., Brockmeyer, E., and Froehlich, J. SqueezaPulse: Adding Interactive Input to Fabricated Objects Using Corrugated Tubes and Air Pulses. In Proceedings of the ACM symposium on tangible and embodied interaction (TEI '17). [Acceptance Rate: 27%]

Cheng, K., **He, L.**, Meng, X., Shamma, D., Thangpalam, A., and Nguyen, D. CozyMaps: Real-time Collaboration on a Shared Map with Multiple Displays. In Proceedings of the 17th International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI'15). Copenhagen, Denmark, August 24-27, 2015. [Acceptance Rate:25.2%]

Plimmer, B., **He, L.**, Zaman, T., Karunanayaka, K., Yeo, A., Jengan, G., and Do, E. New Interaction Tools for Preserving an Old Language. In Proceedings of the 33nd annual ACM conference on Human factors in computing systems (CHI'15). Seoul, Korea, April 18-12, 2015. [Acceptance Rate: 23%] **Honorable Mentions Award**

CONFERENCE EXTENED ABSTRACT/POSTER/DEMO

He, L., Wan, Z., Findlater, L., and Froehlich, J. TacTILE: A Preliminary Toolchain for Creating Accessible Graphics with 3D-Printed Overlays and Auditory Annotations. In Poster Proceedings of the 19th International ACM SIGACCESS Conference on Computers & Accessibility (ASSETS'17). Baltimore, MA, Oct 30 – Nov 1, 2017.

He, L., Peng, H., Land, J., Fuge, M., and Froehlich, J. Designing 3D-Printed Deformation Behaviors Using Spring-Based Structures: An Initial Investigation. In Adjuct Proceedings of the 30th Annual ACM Symposium on User Interface Software and Technology (UIST'17). Quebec City, Canada, October 22–25, 2017.

He, L., Land, J., Peng, H., Fuge, M., and Froehlich, J. Early Exploration of Deformable Interactive Designs with 3D-Printed Springs. In Proceedings of the 1st Annual ACM Symposium on Computational Fabrication. Cambridge, Massachusetts, June 12-13, 2017.

Kazemitabaar, M., **He, L.**, Wang, K., Aloimonos, C., Cheng, T., and Froehlich, J. ReWear: Early Explorations of a Modular Wearable Construction Kit for Young Children. In Proceedings of CHI '16 Extended Abstracts on Human Factors in Computing Systems. [Acceptance Rate: 43%] **Best Paper Award [Top 1%]**

Du, R. and **He, L**. VRSurus: Enhancing Interactivity and Tangibility of Puppets in Virtual Reality. In Proceedings of CHI '16 Extended Abstracts on Human Factors in Computing Systems. [Acceptance Rate: 43%]

He, L., Xu, C., Xu, D., and Brill, R. PneuHaptic: Delivering Haptic Cues with a Pneumatic Armband. In Proceedings of the 19th International Symposium on Wearable Computers (ISWC'15). Osaka, Japan, September 7-11, 2015. [Acceptance Rate: 25%]

Wang, D., Zhang, Y., Gu, T., **He, L.**, and Wang, H. E-Block: A Tangible Programming Tool for Children. In Adjunct Proceedings of the 25th Annual ACM Symposium on User Interface Software and Technology (UIST'12). Cambridge, Massachusetts, October 7–10, 2012.

He, L., Li, G., Zhang, Y., Wang, D., and Wang, H. TempoString: A Tangible Tool for Children's Music Creation. In Proceedings of the 14th International Conference on Ubiquitous Computing (UbiComp'12). Pittsburgh, September 5–8, 2012.

JOURNAL PAPER

Wang, D., **He, L.**, and Dou, K. StoryCube: Supporting Children's Storytelling with a Tangible Tool. The Journal of Supercomputing, Volume 70 Issue 1, Pages 269-283. Springer. 2014.

PATENT

"A Method and System for Children's Tangible Storytelling". Patent No.: 2013100129910. 2013.

SOFTWARE COPYRIGHT

"InkSound: A Pen-based System for Chinese Traditional Painting." 2010.

PROFESSIONAL EXPERIENCE

Fall 2017

University of Washington, Seattle, WA
Graduate Research Assistant. Advised by Prof. Jon E. Froehlich.
Lead a fabrication research project that aims to enable end users to design and fabricate deformable 3D prints using springs and joints.

FALL 2015, 2016
SPRING 2017

University of Maryland, College Park, MD
Graduate Research Assistant. Advised by Prof. Jon E. Froehlich.
Lead research projects on fabrication and supported research projects in TUI.

SUMMER 2016

Microsoft Research, Redmond, WA
Research Intern. Mentored by Rob DeLine.
Designed and developed an open sourced, GUI-based tool for non-expert makers to align all types of signals from input devices.

SPRING 2015

Computational Design Lab, Carnegie Mellon University, PA
Graduate Researcher. Advised by Eric Brockmeyer, collaborate with Gierad Laput.
Led a research project on acoustic sensing and fabrication for interactive input.

SUMMER 2014

KEIO-NUS CUTE Center, Singapore
Research Intern. Advised by Prof. Ellen Yi-Luen Do and Prof. Beryl Plimmer.
Developed conductive toolsets for rich tangible interactions on touchscreen.
Designed collaborative interaction techniques in multiple-surfaces environment.

SPRING 2014 **Human-Computer Interaction Institute**, Carnegie Mellon University, PA
Independent Student Researcher. Supported by Prof. Scott E. Hudson.
Led a research project on haptic simulations on body by pneumatic approaches.

SPRING 2014 **Art Fab**, Carnegie Mellon University, PA
Graduate Research Assistant. Advised by Prof. Ali Momeni.
Designed and built embedded circuitry and wireless communication for interactive puppetry performance.

FALL 2010 - 2013 **HCI Lab**, Institute of Software, Chinese Academy of Sciences, Beijing
Research Assistant. Advised by Prof. Danli Wang.
Investigated post-WIMP interfaces for creation purposes and tangible interaction, including pen-based system for Chinese traditional painting, storytelling system based on IMU and machine learning, and novel music creation interface.

SPRING 2010 **Microsoft Research Asia**, Beijing
Part-time Student Intern. Mentored by Bei Li.
Designed and built an online photo management system based on Silverlight, Windows Azure, Deep Zoom and WFC.

TEACHING

Fall 2018 CSE 440A: Introduction to HCI

Spring 2018 CSE 590A: Ubiquitous Computing (co-build with Jon Froehlich)

Winter 2018 HCID 521: Prototyping Studio (co-build with Jon Froehlich and Jennifer Mankoff)

FALL 2016 UMD CMSC 250: Discrete Structures

SPRING 2016 UMD CMSC 132: Object-Oriented Programming II

FALL 2015 UMD CMSC 131: Object-Oriented Programming I

MENTORING

09/2018 - Sophie Tian (Undergrad in CSE, UW)

01/2018 – 08/2018 Michelle Lin (Undergrad in CSE, UW)

02/2017- 05/2017 Joshua Land (Undergrad in ME, UMD)

TALKS

DEC 2018 CSE SkillShare Workshop at UW

NOV 2018 CSE Colloquia – Computational Fabrication, UW

NOV 2018 Industry Affiliates Research Day at UW

May 2018 Workshop lecture on 3D modeling with Fusion 360 for CSE 590A

March 2018 Guest lecture on laser cutting for HCID 521

NOV 2017	Industry Affiliates Research Day at UW
NOV 2016	Tech+Design: Interaction Design for a Purpose
MAY 2016	HCIL's 33rd Annual Symposium

ACADEMIC SERVICES

PAPER REVIEWERS	CHI 2019/2018/2017/2016, TEI 2018/2017, IDC 2017, MobileHCI 2016
VOLUNTEER	TEI 2017, CHI 2015, UIST 2014, CHI 2014, China Symposium on HCI
CONFERENCE	AC of CHI 2019 LBW / Web Chair, UIST 2019

SKILLS

HCI RESEARCH	Interview, survey, focus group, usability testing, qualitative & quantitative analysis
PROGRAMMING	C/C++, C#, Java, JavaScript, XHTML, CSS, iOS, Python, SQL
HARDWARE/TOOLS	Digital prototyping, PCB making, hand tools
DESIGN	Adobe Creative Suite, Rhinoceros, Eagle, Sketching
OTHER	Painting, graphic design, calligraphy