

Xiang 'Anthony' Chen Curriculum Vitæ

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Research Interest

I study, design, and build user interface systems that enable people to interact with an eco-system of devices, from wearables, mobiles, appliances to fabrication machines such as 3D printers.

Education

- 09/2012 – **Carnegie Mellon University**
11/2017 Ph.D. in Human-Computer Interaction
School of Computer Science
Thesis: Design and Fabrication to Augment the Physical World
Advisors: Scott Hudson and Stelian Coros; Committee: Jodi Forlizzi and Tovi Grossman
- 09/2010 – **University of Calgary**
06/2012 M.Sc. in Computer Science and Computational Media Design
Department of Computer Science
Thesis: Body-Centric Interaction with a Screenbased Handheld Device
Advisors: Saul Greenberg and Richard Levy; Committee: Barry Wylant and Larry Katz
- 09/2006 – **Zhejiang University**
06/2010 B.Eng. in Computer Science (with Honors)
Chu Kochen Honors College
- 03/2010 – **Universidad Politécnica de Madrid**
08/2010 Exchange student in Telecommunication Engineering
E.T.S.I. Telecomunicación

Professional Experience

- 11/2017 – **Tableau Research, Palo Alto**
present Research Scientist with a mission of enabling people to interact with data
- 05/2015 – **Google Research, Mountain View**
09/2015 Research Intern in Mobile Interactive Computing Group with Yang Li.
Developed a user-defined cross-device interaction framework.
- 06/2014 – **Microsoft Research, Redmond**
08/2014 Research Intern in Natural Interaction Research with Bill Buxton and Ken Hinckley.
Developed a multi-wearable interactive system.
- 05/2013 – **Autodesk Research, Toronto**
08/2013 Research intern/consultant in User Interface Research Group with Tovi Grossman, Daniel Wigdor and George Fitzmaurice.
Developed interaction techniques with smart watches.
- 06/2012 – **Microsoft Research, Redmond**
08/2012 Research Intern in Natural Interaction Research with Ken Hinckley and Hrvoje Benko.
Developed motion and context sensing techniques for pen computing.

- 11/2009 – **Microsoft Research Asia, Beijing**
 03/2010 Research intern in Media Computing Group with Bin B. Zhu.
 Developed novel CAPTCHA techniques and systems.
- 07/2009 – **Alibaba Group, Hangzhou**
 10/2010 Software engineer intern in Quality Assurance Group.
 Developed routines for testing data-centric web-based programs.

Peer-Reviewed Conference and Journal Papers

In Human-Computer Interaction, CHI and UIST are amongst the top-tier publication venues (as of 2016 ranked No. 1 and 3, respectively, by Google Scholar^a).

Quick summary since 2012: Best Papers/Honorable Mention (3); UIST (9), CHI (7), TOCHI (1), Mobile-HCI (4), GI (2) and other venues (4); Work done in CMU (14), collaborated with Autodesk Research (5), Microsoft Research (2), and Google Research (2).

^ahttps://scholar.google.com/citations?view_op=top_venues&hl=en&vq=eng_humancomputerinteraction

- CHI '18* **Xiang 'Anthony' Chen**, Ye Tao, Guanyun Wang, Runchang Kang, Tovi Grossman, Stelian Coros, Scott Hudson. Forte: User-Driven Generative Design *To Appear at ACM CHI 2018*. Acceptance Rate: 25.7%.
- CHI '18* **Xiang 'Anthony' Chen**, Stelian Coros, Scott Hudson. Medley: A Library of Embeddables to Explore Rich Material Properties for 3D Printed Objects *To Appear at ACM CHI 2018*. Acceptance Rate: 25.7%.
- CHI '18* Jun Gong, Zheer Xu, Qifan Guo, Teddy Seyed, **Xiang 'Anthony' Chen**, Xiaojun Bi, Xing-Dong Yang.
 ★ *WrisText: One-handed Text Entry on Smartwatch using Wrist Gestures. To Appear at ACM CHI 2018*.
 Acceptance Rate: 25.7%. **Best Paper Honorable Mention**
- CHI '18* Byoungkwon An, Ye Tao, Jianzhe Gu, Tingyu Cheng, **Xiang 'Anthony' Chen**, Xiaoxiao Zhang, Wei Zhao, Youngwook Do, Shigeo Takahashi, Hsiang-Yun Wu, Teng Zhang, Lining Yao. Thermorph: Democratizing 4D Printing of Self-Folding Materials and Interfaces *To Appear at ACM CHI 2018*. Acceptance Rate: 25.7%.
- CHI '17* Anhong Guo, Jeeun Kim, **Xiang 'Anthony' Chen**, Tom Yeh, Scott Hudson, Jennifer Mankoff, Jeffrey Bigham. Façade: Auto-generating Tactile Interfaces to Appliances. *Proc. ACM CHI 2017*, 5826-5838. Acceptance Rate: 25%.
- TOCHI '17* **Xiang 'Anthony' Chen**, Yang Li. Improv: An Input Framework for Improvising Cross-Device Interaction By Demonstration. *ACM TOCHI*, 24(2), 15.
- UIST '16* **Xiang 'Anthony' Chen**, Jeeun Kim, Jennifer Mankoff, Tovi Grossman, Stelian Coros, Scott Hudson. Reprise: A Design Tool for Specifying, Generating, and Customizing 3D Printable Adaptations on Everyday Objects. *Proc. ACM UIST 2016*, 29-39. Acceptance Rate: 20.6%.
- UIST '16* **Xiang 'Anthony' Chen**, Yang Li. Bootstrapping User-Defined Body Tapping Recognition with Offline-Learned Probabilistic Representation. *Proc. ACM UIST 2016*, 359-364. Acceptance Rate: 20.6%.
- UIST '16* Anhong Guo, **Xiang 'Anthony' Chen**, Haoran Qi, Samuel White, Suman Ghosh, Chieko Asakawa, Jeffrey Bigham. VizLens: A Robust and Interactive Screen Reader for Interfaces in the Real World. *Proc. ACM UIST 2016*, 651-664. Acceptance Rate: 20.6%.
- GI '16* Vikram Kamath Cannanure, **Xiang 'Anthony' Chen**, Jennifer Mankoff. Twist 'n' Knock: A One-handed Gesture for Smart Watches. *Proc. GI 2016*, 189-193. Acceptance Rate: 39.4%.
- CHI '16* Adrian de Freitas, Michael Nebeling, **Xiang 'Anthony' Chen**, Junrui Yang, Akshaye Shreenithi Kirupa Karthikeyan Ranithangam, Anind Day. Snap-To-It: A User-Inspired Platform for Opportunistic Device Interactions. *Proc. ACM CHI 2016*, 5909-5920. Acceptance Rate: 23.4%.

- IUI '16* Gierad Laput, **Xiang 'Anthony' Chen**, Chris Harrison. Sweepsense: Ad Hoc Configuration Sensing Using Reflected Swept-Frequency Ultrasonics. *Proc. IUI 2016*, 332-335.
- UIST '15* **Xiang 'Anthony' Chen**, Stelian Coros, Jennifer Mankoff, Scott Hudson. Encore: 3D Printed Augmentation of Everyday Objects with Printed-Over, Affixed and Interlocked Attachments. *Proc. ACM UIST 2015*, 73-82. Acceptance Rate: 23.6%.
- UIST '15* Gierad Laput, **Xiang 'Anthony' Chen**, Chris Harrison. 3D Printed Hair: Fused Deposition Modeling of Soft Strands, Fibers, and Bristles. *Proc. ACM UIST 2015*, 593-597. Acceptance Rate: 23.6%.
- MobileHCI '15* Tovi Grossman, **Xiang 'Anthony' Chen**, George Fitzmaurice. Typing on Glasses: Adapting Text Entry to Smart Eyewear. *Proc. MobileHCI 2015*, 144-152. Acceptance Rate: 25.2%.
- UIST '14* Ken Hinckley, Michel Pahud, Hrvoje Benko, Pourang Irani, Marcel Gavrilu, François Guimbretière, ★ **Xiang 'Anthony' Chen**, Fabrice Matulic, William Buxton, Andrew Wilson. Sensing Techniques for Tablet+Stylus Interaction. *Proc. ACM UIST 2014*, 605-614. Acceptance Rate: 22.2%. **Best Paper Award**
- UIST '14* **Xiang 'Anthony' Chen**, Julia Schwarz, Chris Harrison, Jennifer Mankoff, Scott Hudson. Air+Touch: Interweaving Touch & In-Air Gestures. *Proc. ACM UIST 2014*, 519-525. Acceptance Rate: 22.2%.
- UIST '14* **Xiang 'Anthony' Chen**, Tovi Grossman, George Fitzmaurice. Swipeboard: A Text Entry Technique for Ultra-Small Interfaces That Supports Novice to Expert Transitions. *Proc. ACM UIST 2014*, 615-620. Acceptance Rate: 22.2%.
- UIST '14* Gierad Laput, Robert Xiao, **Xiang 'Anthony' Chen**, Scott Hudson, Chris Harrison. Skin Buttons: Cheap, Small, LowPowered and Clickable Fixed-Icon Laser Projectors. *Proc. ACM UIST 2014*, 389-394. Acceptance Rate: 22.2%.
- CHI '14* **Xiang 'Anthony' Chen**, Tovi Grossman, Daniel Wigdor, George Fitzmaurice. Duet: Exploring Joint Interactions on a Smart Phone and a Smart Watch. Acceptance Rate: 22.8%. *Proc. ACM CHI 2014*, 159-168. **Best Paper Award**
- MobileHCI '14* **Xiang 'Anthony' Chen**, Julia Schwarz, Chris Harrison, Jennifer Mankoff, Scott Hudson. Around-Body Interaction: Sensing & Interaction Techniques for Proprioception-Enhanced Input with Mobile Devices. *Proc. MobileHCI 2014*, 287-290. Acceptance Rate: 21.3%.
- Visual Computer '13* Bin Pan, Yong Zhao, Xiaoming Guo, **Xiang Chen**, Wei Chen, Qunsheng Peng. Perception-motivated visualization for 3D city scenes. *The Visual Computer* 29.4 (2013): 277-286.
- GI '12* Ken Hinckley, **Xiang 'Anthony' Chen**, Hrvoje Benko. Motion and Context Sensing Techniques for Pen Computing. *Proc. GI 2012*, 71-78. Acceptance Rate: 33%.
- MobileHCI '12* **Xiang 'Anthony' Chen**, Nicolai Marquardt, Anthony Tang, Sebastian Boring, Saul Greenberg. Extending a Mobile Device's Interaction Space through Body-Centric Interaction. *Proc. MobileHCI 2012*, 151-160. Acceptance Rate: 25%.
- MobileHCI '12* Sebastian Boring, David Ledo, **Xiang 'Anthony' Chen**, Anthony Tang, Nicolai Marquardt, Saul Greenberg. The Fat Thumb: Using the Thumb's Contact Size for Single-Handed Mobile Interaction. *Proc. MobileHCI 2012*, 39-48. Acceptance Rate: 25%.
- AVI '12* **Xiang 'Anthony' Chen**, Sebastian Boring, Sheelagh Carpendale, Anthony Tang, Saul Greenberg. Spalendar: Spatially Visualizing Group's Calendar Activities as a Public Interactive Display. *Proc. AVI 2012*, 689-696.
- CAD/Graphics '11* Bin Pan, **Xiang Chen**, Xiaoming Guo, Wei Chen, Qunsheng Peng. Interactive Expressive Illustration of 3D City Scene. *Proc. CAD/Graphics 2011*, 406-410.

Awards and Scholarships

- 2016 **Adobe Research PhD Fellowship**
- 2015 **Qualcomm Innovation Fellowship Finalist**
- 2014 **UIST Best Paper Award**
- 2014 **CHI Best Paper Award**
- 2014 **CHI Best Talk Award**
- 2013 **Qualcomm Innovation Fellowship Finalist**
- 2012 **University of Calgary Department Research Award**
- 2010 **Academic Project Scholarships in Madrid-Spain for Chinese Technical Students**
- 2009 **Zhejiang University Academic Scholarship**
- 2009 **Chinese University of Hong Kong Winter School Fellowship**
- 2007, 2008 **University of Hong Kong Crimson Summer Exchange Co-Fellowship**

Patents

- P.6 Gierad Laput, **Xiang ‘Anthony’ Chen**, Chris Harrison. “3D Printed Hair: Fused Deposition Modeling of Strands, Fibers and Bristles”. U.S. filed October 2015
- P.5 Tovi Grossman, **Xiang ‘Anthony’ Chen**, George Fitzmaurice. “Techniques For Interacting With Wearable Devices”. U.S. Patent Application 14/832,983, filed August 21, 2015.
- P.4 Gierad Laput, Robert Xiao, **Xiang ‘Anthony’ Chen**, Scott Hudson, Chris Harrison. “Cheap, Small, Low-Powered, Clickable FixedIcon Laser Projections”. U.S. Patent Application 61/997,743 filed July 2014.
- P.3 **Xiang ‘Anthony’ Chen**, Tovi Grossman, Daniel Wigdor, George Fitzmaurice. “Techniques For Interacting With Handheld Devices”. U.S. Patent 20,150,153,928, issued June 4, 2015.
- P.2 **Xiang ‘Anthony’ Chen**, Tovi Grossman, George Fitzmaurice. “Techniques For Interacting With Handheld Devices.” U.S. Patent 20,150,153,952, issued June 4, 2015.
- P.1 Hrvoje Benko, **Xiang Chen**, and Kenneth Paul Hinckley. “Motion and context sharing for pen-based computing inputs.” U.S. Patent Application 13/903,944, filed May 28, 2013.

Selected Press Coverage

Primary research projects

- 2018 3ders.org. ”Forté: user-driven generative design tool for easy optimization of 3D printed objects”
- 2018 All3DP. ”Forté Lets you Draw in 2D, Creates 3D Generative Designs Automatically”
- 2018 3DShoes.com. ”Forté Design Tool”
- 2018 FutureLab3D. ”Forte: user-driven generative design tool for easy optimization of 3D printed objects”
- 2018 3D Adept. ”Forte, the generative design tool that will ease the optimization of 3D printed objects”

- 2018 3dimensions.kr. "3D design software that makes your design look like: Forté" (Translated from Korean)
- 2018 STAMPARE IN 3D. "Anthony Chen e lo strumento di disegno interattivo Forté"
- 2016 Branchemagasinet UDKOM. "3D-printere reparerer ting"
- 2016 DIY 3D Printing. "Encore 3D Printing Upgrades for Everyday Objects"
- 2015 3dprint.com. "Sustainable 3D Printing Methods Add to or Subtract from Existing Objects"
- 2015 New Scientists. "3D print extra bits for old objects to help extend their life"
- 2015 3ders.org. "Researchers develop Encore tool for augmenting everyday objects with 3D printing"
- 2015 3dprint.com. "Encore: Research Allows for 3D Printed Augmentation of Everyday Objects"
- 2015 3dtectionix.com . "Encore WebGL-Based Tool and 3D Printing Improve Everyday Objects"
- 2014 labs.blogs.com. "Duet: Exploring Joint Interactions on a Smart Phone and a Smart Watch"
- 2013 sourcebits.com. "How an Innovative Mobile Interaction Concept Could Benefit Enterprises"

Collaborated research projects

- 2016 **SweepSense (collaborated with Gierad Laput)**
R&D Magazine, MIT Technology Review
- 2016 **Snap to It (collaborated with Adrian de Freitas)**
MIT Technology Review
- 2015 **3D Printed Hair (collaborated with Gierad Laput)**
Fast Company, CNET, Gizmodo, Hackaday, MIT Technology Review, Engadget, Plastics Today, New York Magazine, etc.
- 2014 **Skin Buttons (collaborated with Gierad Laput)**
New York Times, TechCrunch, WIRED, Fast Company, New Scientist, Gizmodo, CBC, etc.
- 2014 **Tablet+Stylus Interaction (collaborated with Ken Hinckley)**
FastCo Design's #2 User Interface Innovation of 2014
- 2012 **The Fat Thumb (collaborated with Sebastian Boring)**
PC World, Engadget, Gizmodo, etc.

Talks and Presentations

- 02/2018 **Computational Tool Support for Mass Customization**
FXPAL, Palo Alto, U.S. (hosted by Daniel Avrahami)
- 05/2017 **Computational Design and Fabrication to Augment Everyday Objects**
Dartmouth College, Hanover, U.S. (hosted by Xing-Dong Yang)
- 02/2016 **Body-Centric Interaction with Mobile and Wearable Devices**
Body Hacking Con 2016, Austin, U.S.
- 12/2015 **Enabling End-User Creativity with New Fabrication Techniques**
X-Studio, Tsinghua University, Beijing, China (hosted by Ying-Qing Xu)

- 11/2015 **Encore: 3D Printed Augmentation of Everyday Objects with Printed-Over, Affixed and Interlocked Attachments**
Programming Usable Interface Guest Lecture, CMU, Pittsburgh, U.S.
- 10/2015 **Duet: Exploring Joint Interactions on a Smart Phone and a Smart Watch**
Midwest UX 2015, Pittsburgh, U.S.
- 03/2015 **Snap-to-It: Using Mobile Cameras To Opportunistically Connect And Interact With An Internet Of Things**
QualComm, San Diego, U.S.
- 08/2013 **Motion and Context Sensing for Pen Computing**
David R. Cheriton School of Computer Science, University of Waterloo, Waterloo, Canada (hosted by Daniel Vogel)
- 05/2013 **Motion and Context Sensing for Pen Computing**
Dynamic Graphics Project, University of Toronto, Toronto, Canada (hosted by Daniel Wigdor)
- 06/2013 **Motion and Context Sensing for Pen Computing**
Autodesk Research, Toronto, Canada (hosted by Tovi Grossman)
- 05/2013 **Around-Body Interaction**
Hasso-Plattner-Institut, Berlin, Germany (hosted by Patrick Baudisch)
- 03/2013 **Around-Body Interaction**
QualComm, San Diego, U.S.

Teaching and Mentoring

Teaching Assistant (Preparing & Giving Lectures)

- 2015 **05430: Programming Usable Interfaces**
School of Computer Science, Carnegie Mellon University
- 2014 **05410: User-Centered Research and Evaluation**
School of Computer Science, Carnegie Mellon University
- 2010 **CPSC 481: Human Computer Interaction I**
Department of Computer Science, University of Calgary

Mentoring

- 2017 **Runchang Kang**
Master student in Architecture
Project: Finite Element Analysis of post-processed generative designs
- 2015 **Vikram Kamath Cannanure**
Master student in Learning Science
Project: one-handed gesture for smart watches.
- 2015 **Yaakov Lyubetsky, Hyunsoo Andrew Park**
Master students in HCI and Communication Design
Project: learning from failed 3D prints.

Service

2017-present Program Committee

ACM CHI Conference on Human Factors in Computing Systems 2019
ACM International Conference on Interactive Surfaces and Spaces 2018
International Symposium of Chinese CHI 2018
ACM CHI Conference on Human Factors in Computing Systems 2016 Late Breaking Work

2015 – 2016 Session Chair
UIST '15, CHI '16-'17.

2012 – 2017 Reviewer
CHI '13-'18, UIST '13-'18, CSCW '14-'16, MobileHCI '13-'16, TEI '13-'16, ISWC '15, Ubicomp '16, DIS '14'18, ITS '13-'15, GI '12-'13, '16, MUM '13, CHI PLAY '14, ToCHI '14, SUI '14-'15, IUI '15, EuroGraphics '15, C&C '15, TVX '15, '17, EICS '15, IDC '15, Pervasive Computing '16, IJHCS '17, TMC '17, IMWUT '17, Computer & Graphics '18

2014 – 2016 “Special Recognitions” as a CHI/UIST reviewer
★ CHI PLAY '14, CHI '15-'16, UIST '15-'16.

2007 – 2009 Volunteer
TEI '12
Crimson Summer Exchange, Crimson Chinese Culture Education Foundation
Three River Film Festival

References

Scott Hudson

Professor
Human-Computer Interaction Institute, Carnegie Mellon University
scott.hudson@cs.cmu.edu

Stelian Coros

Assistant Professor
Robotics Institute, Carnegie Mellon University
scoros@cmu.edu

Tovi Grossman

Distinguished Research Scientist
Autodesk Research
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Saul Greenberg

Professor
Department of Computer Science, University of Calgary
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Yang Li

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Google Research
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