

# XING-DONG YANG

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Department of Computer Science  
Dartmouth College  
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My research in Human-Computer Interaction focuses on input technologies, novel interaction techniques and novel augmentations for mobile and wearable devices. In particular, my work focuses on understanding user needs and limitations, and creating new technologies that make interactions between mobile and humans easy and natural. I draw upon a variety of methods in my research, from identifying user needs and limitations to designing and building novel interactive systems and applying methods from qualitative and quantitative research to assess the features of my innovations.

## EDUCATION

**Ph.D. in Computing Science** 2008 - 2013

**\*Winner of 2013 Bill Buxton Best Canadian HCI Dissertation Award**

Research area: Human-Computer Interaction

Thesis: Blurring the Boundary between Direct & Indirect Mixed Mode Input Environments

Thesis advisors: Pourang Irani and Pierre Boulanger

University of Alberta, Edmonton, Alberta, Canada

**M.Sc. in Computing Science** 2005 - 2008

Research area: Haptic User Interfaces

Thesis: A Performance Analysis of Motor-skill Training Using Haptic Training

Thesis advisors: Pierre Boulanger and Walter Bischof

University of Alberta, Edmonton, Alberta, Canada

**B.Sc. in Computer Science (with Distinction)** 2002 - 2005

University of Manitoba, Winnipeg, Manitoba, Canada

## GRANTS

[G.4] NSF CRII: SaTC: Lendable: Designing Modular Hardware and Unobtrusive Interactions to Enable Convenient and Trustworthy Lending of Small Personal Computing Devices. (\$175,000). 2017 – 2019

[G.3] CompX Faculty Grants. One-Handed Text Entry on a Smartwatch using Wrist Gestures. (\$21,000). 2017 – 2018

[G.2] NSF CSR: Large: Collaborative Research: Smart earpiece for supporting healthy eating behaviors (\$1,082,976). With David Kotz, Jacob Sorber, Ryan Halter, Kofi M. Odame, and Kelly Caine. 2016 – 2018

[G.1] Microsoft HoloLens Academic Research Grant. Augmenting Reality for the Visually Impaired with Microsoft HoloLens (\$100,000). With Emily Cooper and Wojciech Jarosz. 2016 – 2017

## PROFESSIONAL AND RESEARCH POSITIONS

**Dartmouth College** – Department of Computer Science 2015-Present  
Assistant Professor

<b>University of Calgary</b> – Interactions Lab	2014
Postdoctoral Researcher. Advised by Dr. Anthony Tang and Dr. Saul Greenberg.	
<b>Microsoft Research Asia</b> – HCI Group	2012
Research Intern. Advised by Dr. Xiang Cao.	
<b>Autodesk Research</b> – User Interface Research Group	2010, 2012
Research Intern. Advised by Dr. Tovi Grossman and Dr. George Fitzmaurice.	

## REFEREED PUBLICATIONS


**A note on publication venues:** in Human-Computer Interaction, the ACM Conference on Human Factors in Computing Systems (CHI) and ACM Symposium on User Interface Software & Technology (UIST) are considered the best forums, which have an annual acceptance rate of around 20 - 25%.

**Underlined first authors:** my advisees since I started my faculty position at Dartmouth in July 2015.

### Peer-Reviewed Conference Papers

- [C.31] D.Y. Huang, R. Guo, J. Gong, J. Wang, J. Graham, D. N. Yang, and **X. D. Yang**. (2017). RetroShape: Leveraging Rear-Surface Shape Displays for 2.5D Interaction on Smartwatches. In *Proceedings of the ACM Symposium on User Interface Software & Technology (UIST'17)*, 539-551.
- [C.30] T. Han, Q. Han, M. Annett, F. Anderson, D. Y. Huang, and **X. D. Yang**. (2017). Frictio: Passive Kinesthetic Force Feedback for Smart Ring Output. In *Proceedings of the ACM Symposium on User Interface Software & Technology (UIST'17)*, 131-142.
- [C.29] J. Gong, Y. Zhang, X. Zhou, and **X. D. Yang**. (2017). Pyro: Thumb-Tip Gesture Recognition Using Pyroelectric Infrared Sensing. In *Proceedings of the ACM Symposium on User Interface Software & Technology (UIST'17)*, 553-563.
- [C.28] T. Seyed, **X. D. Yang**, and Daniel Vogel. (2017). A Modular Smartphone for Lending. In *Proceedings of the ACM Symposium on User Interface Software & Technology (UIST'17)*, 205-215. **UIST 2017 Best Talk Award**
- [C.27] T. Li, X. Xiong, Y. Xie, G. Hito, **X. D. Yang**, and X. Zhou. (2017). Reconstructing Hand Gestures Using Visible Light. In *Proceedings of the ACM International Joint Conference on Pervasive and Ubiquitous Computing (Ubicomp'17)*, Volume 1, Issue 3.
- [C.26] J. Gong, L. Li, D. Vogel, and **X. D. Yang** (2017). Cito: An Actuated Smartwatch for Extended Interactions. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI'17)*, 5331-5345.
- [C.25] J. Gong, **X. D. Yang**, and P. Irani (2016). WristWhirl: One-handed Continuous Smartwatch Input using Wrist Gestures. In *Proceedings of the ACM Symposium on User Interface Software & Technology (UIST'16)*, 861-872.

----- Publications before I started as a faculty at Dartmouth -----

- [C.24] T. Han, D. Ahlström, **X. D. Yang**, A. Byagowi, and P. Irani (2016). Exploring Design Factors for Transforming Passive Vibration Signals into Smartwear Interactions. In *Proceedings of NordiCHI'16*, Article No. 35.
- [C.23] E. Chan, T. Seyed, W. Stuerzlinger, **X. D. Yang**, and F. Maurer (2016). User Elicitation on Single-hand Microgestures. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI'16)*, 3403-3414. **CHI 2016 Honorable Mention Award (Top 5%)** 
- [C.22] T. Seyed, **X. D. Yang**, and D. Vogel (2016). Doppio: A Reconfigurable Dual-Face Smartwatch for Tangible Interaction. In *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI'16)*, 4675-4686.
- [C.21] M. Serrano, B. Ens, **X. D. Yang**, and P. Irani (2015). Gluey: Developing a Head-Worn Display Interface to Unify the Interaction Experience in Distributed Display Environments. In *Proceedings of the ACM International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI'15)*, 161 - 171.
- [C.20] T. Seyed, **X. D. Yang**, A. Tang, S. Greenberg, J. Gu, B. Zhu, and X. Cao (2015). CipherCard: Enhancing Security on Common Touchscreen Devices using Two-factor Authentication. In *Proceedings of the IFIP conference on Human-Computer interaction (INTERACT'15)*, 436 - 454.
- [C.19] A. Nittala, **X. D. Yang**, S. Bateman, E. Sharlin, and S. Greenberg (2015). PhoneEar: Interactions for Mobile Devices that Hear High-Frequency Sound-Encoded Data. In *Proceedings of the ACM SIGCHI Symposium on Engineering Interactive Computing Systems (EICS'15)*, 174-179.
- [C.18] R. Tang, **X. D. Yang**, S. Bateman, J. Jorge, and A. Tang. (2015). Physio@Home: Exploring visual guidance and feedback techniques for physiotherapy patients at home. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI'15)*, 4123-4132.
- [C.17] **X. D. Yang**, K. Hasan, N. Bruce, and P. Irani (2013). Surround-See: Enabling Peripheral Vision on Smartphones during Active Use. In *Proceedings of the ACM Symposium on User Interface Software & Technology (UIST'13)*, 291-300.
- [C.16] M. Nancel, O. Chapuis, W. Pietriga, **X. D. Yang**, P. Irani, and M. Beaudouin-Lafon (2013). High-Precision Pointing on Large Wall Displays using Small Handheld Devices. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI'13)*, 831-840.
- [C.15] **X. D. Yang**, T. Grossman, D. Wigdor and G. Fitzmaurice. (2012). Magic Finger: Always-Available Input through Finger Instrumentation. In *Proceedings of the ACM Symposium on User Interface Software & Technology (UIST'12)*, 147-156.
- [C.14] H. Zhang, **X. D. Yang**, B. Ens, H. N. Liang, P. Boulanger, and P. Irani (2012). See Me, See You: A Lightweight Method for Discriminating User Touches on Tabletop Displays. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI'12)*, 2327-2336.

- [C.13] K. Hasan, **X. D. Yang**, A. Bunt, and P. Irani (2012). A-Coord Input: Coordinating Auxiliary Input Streams for Augmenting Contextual Pen- Based Interactions. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI'12)*, 805-814.
- [C.12] K. Hasan, **X. D. Yang**, H. N. Liang and P. Irani. (2012). How to Position the Cursor?: An Exploration of Absolute and Relative Cursor Positioning for Back-of-Device Input. In *Proceedings of the 13th International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI'12)*, 103-112.
- [C.11] H. Tu, **X. D. Yang**, F. Wang, F. Tian and X. Ren. (2012). Mode Switching Techniques through Pen and Device Profiles. In *Proceedings of the 10th Asia Pacific Conference on Computer Human Interaction (APCHI'12)*, 169-176.
- [C.10] **X. D. Yang**, T. Grossman, P. Irani, and G. Fitzmaurice. (2011). TouchCuts and TouchZoom: Enhanced Target Selection for Touch Displays using Finger Proximity Sensing. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI'11)*, 2585-2594.
- [C.9] C. Williams, **X. D. Yang**, G. Partridge, J. Usiskin-Miller, A. Major, P. Irani. (2011). TZee: Exploiting the Lighting Properties of Multi-touch Tabletops for Tangible 3D Interactions. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI'11)*, 1363-1372.
- [C.8] **X. D. Yang**, E. Mak, D. McCallum, P. Irani, X. Cao, and S. Izadi (2010). LensMouse: Augmenting the mouse with an interactive touch display. In *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI'10)*, 2431-2440. **CHI 2010 Honorable Mention Award (Top 5%)** 🏆
- [C.7] **X. D. Yang**, E. Mak, P. Irani, and W. F. Bischof (2009). Dual-Surface Input: Augmenting One-Handed Interaction with Coordinated Front and Behind-the-Screen Input. In *Proceedings of the ACM International Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI'09)*, 10 pages, Article No.5. **MobileHCI 2009 Honorable Mention Award (Top 5%)** 🏆
- [C.6] **X. D. Yang**, P. Irain, P. Boulanger, and W. F. Bischof (2009). A Model for Steering with Haptic-Force Guidance. In *Proceedings of the IFIP conference on Human-Computer interaction (INTERACT'09)*, 465–478.
- [C.5] **X. D. Yang**, W. F. Bischof, and P. Boulanger (2008). The Effects of Hand Motion on Haptic Perception of Force Direction. In *Proceedings of the Euro-haptics (EH'08)*, 355–360.
- [C.4] **X. D. Yang**, W. F. Bischof, and P. Boulanger (2008). Perception of Haptic Force Magnitude during Hand Movements. In *Proceedings of the IEEE International Conference on Robotics and Automation (ICRA'08)*, 129–135.
- [C.3] **X. D. Yang**, W. F. Bischof, and P. Boulanger (2008). Validating the Performance of Haptic Motor Skill Training. In *Proceedings of the Symposium on Haptic Interfaces for Virtual Environment and Teleoperator Systems (HAPTICS'08)*, 129–135.

[C.2] P. Irani, C. Gutwin, and **X. D. Yang** (2006). Improving Selection of Off-Screen Targets with Hopping. In *Proceedings of the ACM SIGCHI conference on Human Factors in computing systems (CHI'06)*, 299–308.

[C.1] I. Cheng, R. Shen, **X. D. Yang** and Pierre Boulanger (2006). Perceptual Analysis of Level-of-Detail: The JND Approach. In *Proceedings of the IEEE International Symposium on Multimedia*, 533–540.

### **Workshop Papers & Posters**

[W.7] M. Serrano, K. Hasan, B. Ens, **X. D. Yang**, and P. Irani (2015). Smartwatches + Head-Worn Displays: the ‘New’ Smartphone. *Workshop on Mobile Collocated Interactions: From Smartphones to Wearables (CHI 2015)*.

[W.6] M. Serrano, B. Ens, **X. D. Yang**, and P. Irani (2015). Desktop-Gluey: Augmenting Desktop Environments with Wearable Devices. In *ACM MobileHCI 2015 Workshop on Mobile Collocated Interactions With Wearables (MobileHCI'15)*.

[W.5] K. Zarei-nia, **X. D. Yang**, P. Irani, N. Sepehri (2009). Evaluating Factors that Influence Path Tracing with Passive Haptic Guidance. In *Proceedings of the International Workshop on Haptic and Audio Interaction Design (HAID'09)*, 21–30.

[W.4] **X. D. Yang**, P. Irani, P. Boulanger, and W. F. Bischof (2009). One-Handed Behind-the-Display Cursor Input on Mobile Devices. In *Proceedings of the ACM Conference Extended Abstracts on Human Factors in Computing Systems (CHI EA '09)*, 4501–4506.

[W.3] N. Kadaba, **X. D. Yang**, and P. Irani (2009). Facilitating Multiple Target Tracking using Semantic Depth of Field (SDOF). In *Proceedings of the ACM Conference Extended Abstracts on Human Factors in Computing Systems (CHI EA '09)*, 4375–4380.

[W.2] **X. D. Yang** and I. Cheng (2006), 3D Skeletonization Using an Enhanced Voxel Tree. In *Proceedings of the ACM SIGGRAPH research poster and abstract*.

[W.1] P. Boulanger, G. Wu, W. F. Bischof, and **X. D. Yang** (2006). Hapto-Audio-Visual Environments for Collaborative Training of Ophthalmic Surgery over Optical Network. In *Proceedings of the IEEE International Workshop on Haptic Audio Visual Environments and their Applications (HAVE'06)*, 21–26.

### **PROFESSIONAL SERVICES**

#### **Program Committee:**

ACM Conference on Human Factors in Computing Systems (CHI)	2018
Graphics Interface (GI)	2015 - 2017
ACM Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI)	2014, 2016

#### **Conference Organization**

Program Chair (Chinese CHI)	2018
Proceedings Chair (UIST)	2016 - 2017

Session Chair. Inking, Perception and Adaptation at Graphics Interface (GI) 2014

**Conference Reviewer:**

ACM Conference on Human Factors in Computing Systems (CHI) 2010 - 2017  
ACM Symposium on User Interface Software & Technology (UIST) 2012 - 2017  
ACM Conference on Tangible, Embedded and Embodied Interaction (TEI) 2013 - 2017  
ACM Conference on Human-Computer Interaction with Mobile Devices and Services (MobileHCI) 2012, 2013, 2015, 2017  
ACM conference on Designing Interactive Systems (DIS) 2014 - 2017  
SIGGRAPH Asia Emerging Technologies 2016  
ACM SIGCHI Symposium on Engineering Interactive Computing Systems (EICS) 2015  
IACR Conference on Financial Cryptography and Data Security (FC) 2015  
Graphics Interface (GI) 2009 - 2010, 2014  
Asia Pacific Conference on Computer Human Interaction (APCHI) 2012  
ACM Conference on Interactive Tabletops and Surfaces (ITS) 2011- 2012  
IEEE Symposium on 3D User Interfaces (3DUI) 2010, 2012, 2016  
IEEE Information Visualization Conference (InfoVis) 2011  
IEEE Conference on Intelligent Robots and Systems (IROS) 2010

**Journal Editor and Reviewer:**

International Journal of Human-Computer Studies – Associate Editor 2017 - present  
Human-Computer Interaction 2017  
International Journal on Computers & Graphics 2013, 2015  
International Journal of Human-Computer Studies 2013  
Transactions on Haptics 2010

**Grant Reviewer:**

Natural Sciences and Engineering Research Council of Canada Discovery Grants 2017  
NSF Small Business Innovation Research 2016

**HONORS AND AWARDS**

**Scholarships**

**Queen Elizabeth II Graduate Student Scholarship** (\$10,000 for 4 months) 2013  
Institutional Academic Scholarship.  
**SurfNet Research Grant** (\$21,000) 2011  
National Academic Scholarship.  
**iCORE Graduate Student Scholarship in ICT** (\$15,000 per year). 2010 - 2012  
Provincial Academic Scholarship.  
**Walter H Johns Graduate Fellowship** (\$4600 per year) 2010 - 2012  
Institutional Academic Scholarship.  
**Natural Sciences and Engineering Research Council of Canada (NSERC)** (PGS D3: \$21,000 per year) 2009 - 2012  
National Research Award.  
**President’s Doctoral Prize of Distinction** (\$10,000) 2009  
Institutional Academic Scholarship.

**Provost Doctoral Entrance Award** (\$4000) 2009  
 Institutional Academic Scholarship.

**Provost Doctoral Entrance Award** (\$8000) 2008  
 Institutional Academic Scholarship.

**University of Manitoba Student Union Scholarship for Academic Excellence** (\$3000) 2005  
 Institutional Academic Scholarship.

**Awards**

**Bill Buxton Best Canadian HCI Dissertation Award** 2013  
 National Research Award.

**Award of Excellence, Star of Tomorrow Internship Program, Microsoft Research Asia** 2012  
 Industrial Research Award.

**CHI'10 Best Paper Honorable Mention** 2010  
 International Research Award.

**MobileHCI'09 Best Paper Honorable Mention** 2009  
 International Research Award.

**Best Teaching Assistant Award** 2009  
 Institutional Teaching Award.

**TEACHING EXPERIENCE**

**Dartmouth College** - Computer Science Department 2016- present  
 Introduction to HCI, Research Topics in HCI, and Smartphone Programming

**University of Calgary** - Computer Science Department 2014  
 Sessional Instructor (winter).  
 Instructor for Introduction to Computer Science for Computer Science Majors I.

**University of Alberta** - Computing Science Department 2005 - 2009  
 Teaching Assistant (fall and winter).  
 Lab instructor for Programming with Data Structures.

**University of Alberta** - Computing Science Department 2006 - 2008  
 Undergraduate Mentor.  
 Helped 1<sup>st</sup> year CS undergraduate students to acclimatize to university.

**STUDENTS AND POST-DOCS**

**Post-Docs**

**Guangyu Xia (Ph.D., CMU)** With Michael Casey. 2016 – 2017  
 Now: Assistant Professor at NYU Shanghai

**Da-Yuan Huang (Ph.D., National Taiwan University)** 2016 – 2017  
 Now: Assistant Professor at NTUST

**Graduate Students**

**Jun Gong (Ph.D., Dartmouth College)** 2015 - present  
 Thesis: Novel Smartwatch Interaction Techniques.

Led to paper publications at UIST 2016-2017 and CHI 2017.

**Teddy Seyed (Ph.D., University of Calgary)** 2014 - present  
 Winter project. Explored a modular smartphone design for lending.  
 Summer project. Explored shoulder-surfing resistant authentication themes using two-factor authentication and head-worn display.  
 Summer project. Explored a dual-face smart watch concept and associated novel interaction techniques.  
 Led to paper publications at INTERACT 2015, CHI 2016, and UIST 2017.

**Ruizhen Guo (M.Sc., Dartmouth College)** 2016 - present  
 Thesis: Leveraging Rear-Surface Shape Displays for 2.5D Interaction on Smartwatches.  
 Led to paper publication at UIST 2017

**Linjun Li (M.Sc., Dartmouth College)** 2016 - present  
 Thesis: Actuated Wearable Devices.

**Qianwen Chen (M.Sc., Dartmouth College)** 2016 - present  
 Thesis: A haptic Irish Whistle Instruction System.

**Ruchir A. Patel (M.Sc., Dartmouth College)** 2016  
 Winter project. Novel Haptic Feedback for Smart Rings.  
 Now: Cofounder of Hey Natasha

**Aditya Shekhar Nittala (M.Sc., University of Calgary)** 2014  
 Summer project. Explored a technique for broadcasting data to smartphones via audio streams.  
 Led to paper publication at EICS 2015.  
 Now: Ph.D. Student at Max Planck Institute for Informatics

**Richard Tang (M.Sc., University of Calgary)** 2014  
 M.Sc. thesis, with Anthony Tang. Explored visual guidance and feedback techniques for physiotherapy exercises.  
 Led to paper publication at CHI 2015.  
 Now: SE at IBM Canada

**Khalad Hasan (M.Sc., University of Manitoba)** 2010 - 2012  
 Summer project, with Pourang Irani. Explored design space of multi-channel pen input.  
 Winter project, with Pourang Irani. Explored absolute and relative cursor positioning for back-of-device input.  
 Led to paper publication at CHI 2012 and MobileHCI 2012.  
 Now: Assistant Professor of Computer Science at San Francisco State University

**Cary Williams (M.Sc., University of Manitoba)** 2011  
 Summer project, with Pourang Irani. Explored tangible interface on diffuse illumination (DI) tabletops.  
 Led to paper publication at CHI 2012.

## TALKS AND PRESENTATIONS

### Presentations at International Conferences

**UIST'13** – St. Andrews, UK 2013  
 “Surround-See: Enabling Peripheral Vision on Smartphones during Active Use.”

**UIST'12** - Boston, MA, USA 2012  
 “Magic Finger: Always-Available Input through Finger Instrumentation.”



<b>CHI'12</b> - Austin, TX, USA	2012
“A-Coord Input: Coordinating Auxiliary Input Streams for Augmenting Contextual Pen-Based Interactions.”	
<b>CHI'11</b> - Vancouver, BC, Canada	2011
“TouchCuts and TouchZoom: Enhanced Target Selection for Touch Displays using Finger Proximity Sensing.”	
<b>CHI'10</b> - Atlanta, GA, USA	2010
“LensMouse: Augmenting the mouse with an interactive touch display.”	
<b>INTERACT'09</b> - Uppsala, Sweden	2009
“A Model for Steering with Haptic-Force Guidance.”	
<b>ICRA'08</b> - Pasadena, CA, USA	2008
“Perception of Haptic Force Magnitude during Hand Movements.”	
<b>EuroHaptics'08 Poster</b> - Madrid, Spain	2008
“The Effects of Hand Motion on Haptic Perception of Force Direction.”	
<b>Haptics'08 Poster</b> - Reno, NV, USA	2008
“Validating the Performance of Haptic Motor Skill Training.”	
<b>SIGGRAPH'06 Poster</b> - Boston, MA, USA	2006
“3D Skeletonization using an Enhanced Voxel Tree.”	
<b>Invited Talks</b>	
<b>Nanjing University</b> – Department of Computer Science Summer School. Nanjing, China	2017
“Unleash Wearable Interactions from the Disappearing Touchscreens”	
<b>Fudan University</b> – Department of Computer Science Colloquium. Shanghai, China	2017
“Unleash Wearable Interactions from the Disappearing Touchscreens”	
<b>Brown University</b> – Department of Computer Science Colloquium. Providence, RI, USA	2017
“Unleash Wearable Interactions from the Disappearing Touchscreens”	
<b>Graphics Interface</b> – Montreal, QC, Canada	2014
“Towards Mobile Interactions that Go Beyond the Touchscreen”	
<b>University of Waterloo</b> – School of Computer Science. HCI Group Seminar. Waterloo, ON, Canada	2014
“Towards Mobile Interactions that Go Beyond the Touchscreen”	
<b>Queen's University</b> – School of Computing. HCI Group Seminar. Kingston, ON, Canada	2014
“Towards Mobile Interactions that Go Beyond the Touchscreen”	
<b>York University</b> – Department of EE&CS. HCI Group Seminar. Toronto, ON, Canada	2014
“Towards Mobile Interactions that Go Beyond the Touchscreen”	
<b>Microsoft Research Asia</b> – HCI Group Seminar. Beijing, China	2012
“Blurring the Boundary of Direct & Indirect Input in a Shared Input Space.”	
<b>Xi'an Jiaotong-Liverpool University</b> – Department of Computer Science Seminar. Suzhou, China	2012
“Blurring the Boundary of Direct & Indirect Input in a Shared Input Space.”	
<b>Kochi University of Technology</b> – Department of Computer Science. HCI Group Seminar. Kochi, Japan	2010
“LensMouse: Augmenting the mouse with an interactive touch display.”	
<b>PATENTS</b>	
[P.4] Gesture Recognition using Infrared Sensing.	2017

J. Gong, Y. Zhang, X. Zhou, and X. D. Yang (Pending) 2014  
 [P.3] Always-Available Input through Finger Instrumentation.  
 X. D. Yang, T. Grossman, D. Wigdor, and G. Fitzmaurice (US: 20140098067)  
 [P.2] Enhanced Target Selection for a Touch-Based Input Enabled User Interface. 2013  
 T. Grossman, G. Fitzmaurice, X. D. Yang, and P. Irani (WO: 2013055997; US: 20130097550)  
 [P.1] Computer Input and Output Peripheral Device. 2012  
 P. Irani, E. Mak, and X. D. Yang (WO: 2010148483; US: 20120092253)

## SELECTED PRESS

**ACM TechNews - SIGCHI Edition** “Dartmouth to Debut Wearables That Warn and Wow at UIST 2017” 2017  
**ACM TechNews - SIGCHI Edition** “Q&A With Ph.D. Student and Smartwatch Designer Jun Gong” 2017  
**EurekAlert** “Dartmouth to Debut Wearables that Warn and Wow at UIST 2017” 2017  
**WEARABLE** “RetroShape Smartwatch Concept Provides Users with Tactile Feedback” 2017  
**techradar** “This Giant Smartwatch Prototype Has a Shape-Deforming Backplate” 2017  
**MIT Technology Review** “This 3-in-1 Phone Will Make You Want to Share It with Strangers” 2017  
**Digital Trends** “This Absurdly Overengineered Smartwatch Crawls, Tilts, and Slides on Your Wrist” 2017  
**EurekAlert** “Dartmouth-led Team Develops Smartwatch with All the Moves” 2017  
**Wall Street Journal** “The Smartwatch You Can Use with One Hand” 2016  
**Gizmodo** “Smartwatch Prototype to Use Wrist as Joystick” 2016  
**TechCrunch** “WristWhirl lets you control your smartwatch with hand gestures” 2016  
**Phys.Org** “Doppio: Researchers unveil dual screen smartwatch” 2016  
**Gizmodo** “A Multi-Screen Smartwatch Might Actually Be a Brilliant Idea” 2016  
**Verge** “Smartwatch concept puts two screens on your wrist” 2016  
**New Scientist** “A phone, or an all-seeing sentry at your command?” 2013  
**Discovery News** “A Phone That Can See Its Surroundings.” 2013  
**Mashable** “Lens Gives Your Phone Peripheral Vision.” 2013  
**Discovery News** “Magic Finger' Swipes Smartphone Remotely.” 2012  
**NBC News** “Magic Finger Turns Everything into a Touch Surface.” 2012  
**Engadget** “'Magic Finger' Reads Gestures from any Surface.” 2012  
**Gizmodo** “Magic Thimble Turns the Entire World into a Touch Surface.” 2012  
**Mashable** “Send Texts from Your Pocket with This Handy Ring.” 2012  
**Slashdot** “Magic Finger Turns Any Surface into a Touch Interface.” 2012  
**Phys.Org** “Magic Finger Device Suggests New Day for Calling up Content.” 2012  
**Hackaday** “Magic Finger Input Device is a Camera on Your Finger Tip.” 2012  
**Winnipeg SUN** “Smart Touchscreen Built at U of M.” 2011

## **REFERENCES**

*Available upon request.*