

Pei-Yu (Peggy) Chi

Research Scientist
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I'm a Research Scientist at Google Research & Machine Intelligence. I received my PhD in Computer Science from UC Berkeley. I develop interactive systems that support users' creativity and learning activities. My research has received a Best Paper Award at ACM CHI, a Google PhD Fellowship in Human-Computer Interaction, a Berkeley Fellowship for Graduate Study, and a MIT Media Lab Fellowship.

EDUCATION **University of California, Berkeley**, Berkeley, CA, USA 08/2011-08/2016
Ph.D. in Computer Science, GPA 3.94/4.0 (*overall*)
Google PhD Fellow (2014-16) and Berkeley Graduate Fellow (2011-13)
Advisor: Professor Björn Hartmann

Massachusetts Institute of Technology, Cambridge, MA, USA 08/2010
M.S. in Media Arts and Sciences, GPA 5.0/5.0 (*overall*)
MIT Media Lab Fellow (2009-10)
Advisor: Research Scientist Henry Lieberman

National Taiwan University, Taipei, Taiwan 06/2008
M.S. in Computer Science, GPA 4.0/4.0 (*overall*)
B.B.A. in Information Management, GPA 3.8/4.0 (*last 60*)
Advisor: Professor Hao-hua Chu

RESEARCH AND WORK EXPERIENCE **Google Inc.**, Mountain View, CA 08/2016–present
Research Scientist

CS Division, University of California, Berkeley, Berkeley, CA 08/2011-08/2016
PhD Student Researcher at the Berkeley Institute of Design

Adobe Research, San Francisco, CA 05-08/2011
Research Intern

Research with Björn Hartmann, Mira Dontcheva, and Wilmot Li on tutorial authoring tools:

- **DemoDraw**: Designed a multi-modal system that generates concise illustrations from user demonstration of physical motions [C.12] (*UIST'16*).
- **DemoCut**: Designed a semi-automatic video editing system that improves the quality of amateur instructional videos for physical tasks [C.8] (*UIST'13*).
- **MixT**: Designed a system that automatically generates interactive tutorials that include step-by-step instructions with text, images, and video clips from author demonstration [C.7, P.6] (*UIST'12* and *CHI'12*).
- **Kinectograph**: Designed a recording device that automatically pans and tilts to follow specific joints of a user using a Kinect sensor [P.7] (*CHI'13* and *Maker Faire 2013*).

Google, Mountain View, CA 05-09/2014, 05-12/2015
Software Engineering Research Intern

Research with Yang Li ('14, '15) and Björn Hartmann ('15) on cross-device interactions:

- **DemoScript**: Designed an IDE tool that automatically visualizes a cross-device storyboard based on developers' scripts in real-time [C.11] (*CHI'16*). **Best Paper Award**

- **Weave:** Designed a framework that provides a set of high-level APIs for developers to create cross-wearable interaction by scripting [C.10, W.1] (*CHI'15, DIS'16*).

Microsoft Research, Redmond, WA

06-08/2013

Research Intern at the CUE and the VIBE groups

Research with Bongshin Lee and Steven Drucker on presentation tools:

- **DemoWiz:** Designed a presentation tool for software demonstrations that provides an increased awareness of upcoming actions through glanceable visualizations [C.9] (*CHI'14*).

MIT Media Lab, Cambridge, MA

09/2008-08/2010

Research Assistant at the Software Agents Group

Research with Henry Lieberman on interactive storytelling:

- **Raconteur:** Designed and developed an intelligent interface that helps a storyteller share stories from a personal media collection with a friend by text chat [C.6, C.5, P.5, T.2] (*IUI'11, CHI'11, IUI'10*, and the M.S. thesis).
- **Goal-oriented interfaces for consumer electronics:** Built a system with commonsense knowledge about the user's intentions to enhance the consumer electronics (MIT Media Lab LabCAST: <http://labcast.media.mit.edu/?p=73>).
- **Tangible objects that connect people:** Designed everyday objects with new interactions to communicate and retrieve life moments [P.4, P.3] (*CHI'09*).

UbiComp Lab, National Taiwan University

12/2005-08/2008

Research Assistant with Hao-hua Chu on ubiquitous computing:

- **Calorie-Aware Kitchen:** Developed a smart kitchen that improves home cooking by providing calorie awareness of food ingredients used during the cooking process [C.3, P.2, P.1, M.2, T.1] (*Persuasive'08, CHI'07 People's Choice Award, UbiComp'06, Pervasive Computing Magazine 2010*, and the M.S. thesis).
- **UbiComp technologies for play-based occupational therapy:** Demonstrated designs for changing slow eating and tooth brushing behaviors [M.1, C.2] (*Pervasive Computing Magazine 2009* and *CHI'08*).

PUBLICATIONS **Conference papers:**

- C.12 Pei-yu (Peggy) Chi, Mira Dontcheva, Wilmot Li, Daniel Vogel, and Björn Hartmann. 2016. *Authoring Illustrations of Human Movements by Iterative Physical Demonstration*. In Proceedings of *UIST 2016*.
- C.11 Pei-yu (Peggy) Chi, Yang Li, and Björn Hartmann. 2016. *Enhancing Cross-Device Interaction Scripting with Interactive Illustrations*. In Proceedings of *CHI 2016*. **Best Paper Award**
- C.10 Pei-yu (Peggy) Chi and Yang Li. 2015. *Weave: Scripting Cross-Device Wearable Interaction*. In Proceedings of *CHI 2015*.
- C.9 Pei-yu (Peggy) Chi, Bongshin Lee, and Steven Drucker. 2014. *DemoWiz: Re-Performing Software Demonstrations for a Live Presentation*. In Proceedings of *CHI 2014*.
- C.8 Pei-yu (Peggy) Chi, Joyce Liu, Jason Linder, Mira Dontcheva, Wilmot Li, and Björn Hartmann. 2013. *DemoCut: Generating Concise Instructional Videos for Physical Demonstrations*. In Proceedings of *UIST 2013*.
- C.7 Pei-yu (Peggy) Chi, Sally Ahn, Amanda Ren, Mira Dontcheva, Wilmot Li, and Björn Hartmann. 2012. *MixT: Automatic Generation of Step-by-Step Mixed Media Tutorials*. In Proceedings of *UIST 2012*.
- C.6 Pei-yu Chi and Henry Lieberman. 2011. *Intelligent Assistance for Conversational Storytelling Using Story Patterns*. In Proceedings of *IUI 2011*.

- C.5 Pei-yu Chi and Henry Lieberman. 2011. Raconteur: Integrating Authored and Real-Time Social Media. In Proceedings of *CHI 2011*.
- C.4 Angela Chang, Pei-yu Chi, Nick Montfort, Cynthia Breazeal, and Henry Lieberman. 2010. Lessons Learned from Designing Children's Interactive Narratives. In Proceedings of *ELO 2010*.
- C.3 Pei-yu Chi, Jen-hao Chen, Hao-hua Chu, and Jin-ling Lo. 2008. Enabling Calorie-Aware Cooking in a Smart Kitchen. In Proceedings of *Persuasive 2008*.
- C.2 Yu-chen Chang, Jin-ling Lo, Chao-ju Huang, Nan-yi Hsu, Hao-hua Chu, Hsin-yen Wang, Pei-yu Chi, and Ya-lin Hsieh. 2008. Playful Toothbrush: Ubicomp Technology for Teaching Tooth Brushing to Kindergarten Children. In Proceedings of *CHI 2008*.
- C.1 Pei-yu Chi, Jen-hao Chen, Shih-yen Liu, and Hao-hua Chu. 2007. Designing Smart Living Objects Enhancing vs. Distracting Traditional Human-Object Interaction. In Proceedings of *HCI International 2007*. (invited paper)

Poster, work-in-progress, and forum papers:

- P.7 Derrick Cheng, Pei-yu (Peggy) Chi, Taeil Kwak, Björn Hartmann, and Paul Wright. 2013. Body-Tracking Camera Control for Demonstration Videos. In Extended Abstract of *CHI 2013*.
- P.6 Pei-yu (Peggy) Chi, Sally Ahn, Amanda Ren, Björn Hartmann, Mira Dontcheva, and Wilmot Li. 2012. MixT: Automatic Generation of Step-by-Step Mixed Media Tutorials. In Extended Abstract of *CHI 2012*.
- P.5 Pei-yu Chi and Henry Lieberman. 2010. Raconteur: From Intent to Stories. In Adjunct Proceedings of *IUI 2010*.
- P.4 Pei-yu Chi, Xiao Xiao, Keywon Chung, and Carnaven Chiu. 2009. Burn Your Memory Away: One-time Use Video Capture and Storage Device to Encourage Memory Appreciation. In Extended Abstract of *CHI 2009*.
- P.3 Keywon Chung, Carnaven Chiu, Xiao Xiao, and Pei-yu Chi. 2009. Stress Outsourced: A Haptic Social Network via Crowdsourcing. In Extended Abstract of *CHI 2009*.
- P.2 Pei-yu Chi, Jen-hao Chen, Hao-hua Chu, and Bing-yu Chen. 2007. Enabling Nutrition-Aware Cooking in a Smart Kitchen. In Extended Abstract of *CHI 2007*. **People's Choice Award**
- P.1 Jen-hao Chen, Keng-hao Chang, Pei-yu Chi, and Hao-hua Chu. 2006. A Smart Kitchen to Promote Healthy Cooking. In Adjunct Proceedings of *UbiComp 2006*.

Workshop paper:

- W.1 Tao Dong, Michael Nebeling, Dan Afergan, Elizabeth F. Churchill, Jeffrey Nichols, Elizabeth Goodman, Pei-Yu Chi, Yang Li, and Daniel Wigdor. 2016. The Making of Cross-Device Experiences: A Hands-on Workshop. In Proceedings of *DIS '16 Companion*.

Magazine papers:

- M.2 Jen-hao Chen, Pei-yu Chi, Hao-hua Chu, and Cheryl Chia-Hui Chen. Pervasive Computing in a Smart Kitchen for Nutrition-Aware Cooking. In *IEEE Pervasive Computing*, vol. 9 (4), 2010, pp. 58-65.
- M.1 Jin-ling Lo, Pei-yu Chi, Hao-hua Chu, and Seng-cho T. Chou. Pervasive Computing in Play-Based Occupational Therapy for Young Children. In *IEEE Pervasive Computing*, vol. 8 (3), 2009, pp. 66-73.

Dissertation and Theses:

- T.3 Pei-yu Chi. Designing Video-Based Interactive Instructions. Ph.D. Dissertation in Computer Science, University of California, Berkeley, USA, August 2016.

T.2 Pei-yu Chi. Raconteur: Intelligent Assistance for Conversational Storytelling with Media Libraries. M.S. Thesis, Massachusetts Institute of Technology, USA, September 2010.

T.1 Pei-yu Chi. Enabling Calorie-Aware Cooking in a Smart Kitchen. M.S. Thesis, Graduate Institute of Networking and Multimedia, National Taiwan University, Taiwan, July 2008.

PATENTS “Scripting Cross-Device Wearable Interaction,” US Patent, Publication number: 2016/0085366 A1, 2016.
“Re-Performing Demonstrations During Live Presentations,” US Patent, Publication number: 2015/0234571 A1, 2014.

HONORS AND AWARDS **Best Paper Award**, ACM CHI 2016
Google PhD Fellowship in Human Computer Interaction 2014-2016
Berkeley Fellowship for Graduate Study, UC Berkeley 2011-2013
Microsoft Research PhD Fellowship Finalist 2012
ITRI Fellow, MIT Media Lab 2009-2010
Phi Tau Phi Award, the Phi Tau Phi Scholastic Award Society 2008
1st Place of GPA, Graduate Institute of Networking and Multimedia, National Taiwan University 2007, 2008
3rd Prize of Paper Award, the Cooperative Workshop of CyberLink and CML on Communications and Multimedia 2008
Garmin Scholarship, Garmin Corporation 2007
People’s Choice Award, ACM CHI 2007 Work-in-Progress Paper 2007
2nd Place, ImagineCup Software Design Competition, Microsoft Taiwan 2007
Excellent Work Award, Acer Long-term Smile Contest 2006
Presidential Award, National Taiwan University 2005

PROFESSIONAL ACTIVITIES **Program Committee:** The Workshop on Evaluation and Usability of Programming Languages and Tools, SPLASH 2017; TAICHI 2016.

Workshop Organizer: ACM DIS ’16 Cross-Device Interaction Workshop.

Paper Reviewer: ACM CHI ’09-’17, UIST ’13-’17, CSCW ’17, InfoViz ’17, GI ’15-’17, TEI ’16, MobileHCI ’15-’16, DIS ’16, UbiComp ’14-’16, MM ’15, SIGGRAPH Asia ’12, NordiCHI ’12, Pervasive Health ’11, CEABM ’11, UbiComp ’09, DAC ’09, IEEE Multimedia ’10, IEEE Pervasive Computing Magazine ’09.

Conference Presenter: ACM CHI ’11-’17, ’07, ’09, UIST ’11-’17, IUI ’10-’11, Electronic Literature Organization ’10, Persuasive ’08, HCI International ’07, UbiComp ’06.

Workshop Presenter: (2015) Rising Stars in EECS, Google PhD Fellowship Summit, Google PhD Intern Summit, Swarm Lab Retreat, BID 10th Anniversary Reunion, Secure Internet of Things Retreat; (2014 and before) Google Bay Area PhD Summit ’14, Story 3.0 at MIT ’10, ITRI Workshop ’10, The Cooperative Workshop of CyberLink and CML on Communications and Multimedia ’07-’08, Technology Day of Univ. of Tokyo ’07, Nightmarket Workshop ’06, ’08.

Conference/workshop Attendee: SIGGRAPH ’16, CVPR ’16, Google I/O ’15-’16, CRA-W Grad Cohort Workshop ’16, CSCW ’16, IEEE WIE-ILC Conference ’16, Women Techmakers Summit ’16/’14, Grace Hopper Celebration of Women in Computing ’15, Yahoo Mobile Developer Conference ’15, Visual Computer Lab Retreat ’11, Living Heritage of AI Workshop at MIT ’09, Pervasive ’06.

Student Volunteer, ACM IUI ’10.

TEACHING AND ADVISING	<p>CS160: User Interface Design, UC Berkeley Graduate Student Instructor for Professor Eric Paulos</p> <p>CS160: User Interface Design, UC Berkeley Graduate Student Instructor for Dr. Andy Carle</p> <p>Undergraduate Student Mentor, UC Berkeley</p> <p>Embedded Middleware (for Ubiquitous Computing and Smart Everyday Objects), National Taiwan University Teaching Assistant for Professor Hao-Hua Chu</p> <p>Nightmarket 2006: Workshop on Interaction, Design, Augmented Reality, and Telecommunication Teaching Assistant and Project Manager</p> <p>Computer Lab Assistant, College of Management, National Taiwan University</p>	<p>Spring 2016</p> <p>Spring 2015</p> <p>2012-2016</p> <p>Spring 2007</p> <p>Summer 2006</p> <p>09/2004-06/2005</p>
ACTIVITIES	<p>President, ASES Taiwan Chapter (Asia-Pacific Student Entrepreneurship Society)</p> <ul style="list-style-type: none"> • Managed an organization of 10 executive team members and more than 30 members, with 15 self-organizing events • Delegate of the 2005 Stanford Summit and the 2005 Singapore Summit • Led and organized the “MIT Sloan and NTU Roundtable Conference” attended by 25 MIT Sloan and 40 National Taiwan University students • Designed the official website and received the webpage design award from National Taiwan University <p>Other</p> <ul style="list-style-type: none"> • Co-founder, WiEECS (Women in EECS) Mentorship Program National Taiwan University • Organizer, CS KickStart, UC Berkeley • Committee Member, UC Berkeley Association of Taiwanese Students • Committee Member, MIT RoC Student Association Connect • Vice president, Student Association of Department of Information Management, National Taiwan University • “U.S. Language and Culture” Program, Stanford University • Concertmaster of string orchestra, Taipei ZhongShan Girls High School • “English as a Foreign Language” Program, New College Nottingham, UK • Member of orchestra, Taipei Ren-Ai Elementary School 	<p>06/2005-06/2006</p> <p>12/2015-present</p> <p>08/2012</p> <p>08/2012-06/2013</p> <p>04/2009-08/2010</p> <p>09/2004-07/2005</p> <p>07-08/2004</p> <p>06-10/2000</p> <p>07-08/1999</p> <p>09/1994-06/1996</p>
SKILLS	<p>Programming languages: Web development (JavaScript, HTML5, CSS3), Java, Python, Processing, C#, LISP, C++, C</p> <p>Tools/toolkits/frameworks: Android, jQuery, D3, Matlab, Kinect, Unity 3D, Kinoma, NLTK, Divisi, ConceptNet, Microsoft Visual Studio</p> <p>Languages: English (fluent), Mandarin Chinese (native), Taiwanese (native), Japanese (basic)</p>	
REFERENCES	<p>Yang Li, Senior Research Scientist (mentor at Google Research), liyang@google.com</p> <p>Björn Hartmann, Professor (advisor at UC Berkeley), bjoern@eecs.berkeley.edu</p> <p>Mira Dontcheva, Senior Research Scientist (mentor at Adobe Research), mirad@adobe.com</p> <p>Wilmot Li, Senior Research Scientist (mentor at Adobe Research), wilmotli@adobe.com</p> <p>Steven Druker, Principal Researcher (mentor at Microsoft Research), sdruker@microsoft.com</p>	

Bongshin Lee, Senior Researcher (mentor at Microsoft Research), bongshin@microsoft.com
Henry Lieberman, Research Scientist (advisor at the MIT Media Lab), lieber@media.mit.edu
Hao-hua Chu, Professor (advisor at National Taiwan University), haochu@ntu.edu.tw