

# Matthew L. Lee

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## Curriculum Vitae

Expert in UX and software, Ph.D. in HCI with 10+ years of experience in leading software solutions from concept to launch in B2C, B2B, and healthcare domains.

I am currently a Group Leader and Senior Research Scientist at FXPAL where I work with cross-disciplinary teams to investigate ways to use new streams of sensing/data to enable smarter workstyles and wellness through behavior change.

I have designed, built (former software engineer), and evaluated solutions that intelligently sense people's everyday behaviors to reveal rich patterns about people's intentions and actions. My multi-disciplinary approach is grounded in extensive user experience research, building system prototypes, and analysis of qualitative and quantitative datasets for generating insights and machine learning.

## PROFESSIONAL EXPERIENCE

- 2016-present **FX Palo Alto Laboratory (FXPAL)**, Palo Alto, CA  
Senior Research Scientist & Group Leader/Manager, Ambient Computing Group
- Manager for Ambient Computing group to innovate context-aware capabilities and collaborative communication technologies that power future work environments and practices.
  - Developed new techniques for sensing human behaviors and internal states for applications in video communication, healthcare, and workplace behavior change.
- 2012-2015 **Philips Research North America**, Briarcliff Manor, NY / Cambridge, MA  
Member of Research Staff
- Founded and grew a HCI group in Philips Research North America
  - Designed, prototyped, and evaluated solutions for patient engagement and empower people to identify patterns and manage their own health
  - Led user research team on internal start-up for smart home sensing solution for aging-in-place
- 2005-2012 **Carnegie Mellon University**, Human-Computer Interaction Institute, Pittsburgh, PA  
Graduate Research Assistant, Ph.D. Candidate
- 2006 **Microsoft Research**, Computer-Mediated Living Group, Cambridge, United Kingdom  
Research Intern
- 2004-2005 **Oracle Corporation**, ADF Faces Team, Redwood Shores, CA  
Software Engineer / Member of Technical Staff
- 2003 **Lockheed Martin Corporation**, Advanced Technology Center, Sunnyvale, CA  
Senior Specialist Intern
- 2002 **Group for User Interface Research**, UC Berkeley, Berkeley, CA  
Undergraduate Researcher
- 2001 **BravoBrava!**, Play Team, Emeryville, CA  
Research and Development Intern

## EDUCATION

- 2012 **Ph.D. in Human-Computer Interaction**  
Carnegie Mellon University, School of Computer Science  
Committee: Anind K. Dey (chair), Scott Hudson, Sara Kiesler, Judith Matthews, Elizabeth Mynatt  
Thesis: "Task-based Embedded Assessment of Functional Abilities"

- 2009 **M.S. Computer Science**  
Carnegie Mellon University, School of Computer Science
- 2003 **B.A. Cognitive Science & Computer Science**  
University of California, Berkeley
- 2002 **Visiting Scholar**  
Oxford University, St. Catherine's College

SELECTED PUBLICATIONS ([https://scholar.google.com/citations?user=\\_Up7LpoAAAAJ](https://scholar.google.com/citations?user=_Up7LpoAAAAJ))

LATEST WORKS

**Anxious, Focused, or Bored: Detecting Affective Flow State using Physiological Sensors**

Matthew L. Lee, Sumeet Jain

Pre-print on arXiv.org to be released June 12, 2020

**Estimating Post-Surgical Pain Level from Mobile Video using Multiple Instance Learning**

Lyndon Kennedy, Matthew L. Lee, Andreas Girgensohn, Lynn Wilcox

Pre-print on arXiv.org to be released June 26, 2020

CONFERENCE PAPERS

**I Should Listen More: Real-time Sensing and Feedback of Non-Verbal Communication in Video Telehealth**

Heather A. Faucett, Matthew L. Lee, Scott Carter

*Proceedings of the ACM on Human-Computer Interaction: Volume 1 Issue CSCW*, Nov 2017.

**BreakSense: Combining Physiological and Location Sensing to Promote Mobility during Work-Breaks**

Scott A. Cambo, Daniel Avrahami, Matthew L. Lee

*Conference on Human Factors in Computing Systems (CHI'17)*

**Real-time Feedback to Improve Medication Taking**

Matthew L. Lee & Anind K. Dey

*Conference on Human Factors in Computing Systems (CHI'14)*, Toronto, BC, Canada, 2014.

🏆 Best Paper Award (top 1%)

**Reflecting on Pills and Phone Use: Supporting Awareness of Functional Abilities for Older Adults.**

Matthew L. Lee & Anind K. Dey

*Conference on Human Factors in Computing Systems (CHI'11)*, Vancouver, BC, Canada, 2011.

🏆 Best Paper Honorable Mention (top 5%)

**Embedded Assessment of Older Adults: A Concept Validation.**

Matthew L. Lee & Anind K. Dey

*Conference on Pervasive Computing Technologies for Healthcare*, Munich, Germany, 2010.

**Lifelogging Memory Appliance for People with Episodic Memory Impairment.**

Matthew L. Lee & Anind K. Dey

*Conference on Ubiquitous Computing (Ubicomp'08)*, Seoul, Korea, 2008.

**Providing Good Memory Cues for People with Episodic Memory Impairment**

Matthew L. Lee & Anind K. Dey

*Conference on Computers and Accessibility (ASSETS'07)*, Phoenix, AZ, USA, 2007.

**Connected Giving: Ordinary People Coordinating Disaster Relief on the Internet.**

Cristen Torrey, Matthew Lee, Moira Burke, Anind Dey, Susan Fussell, & Sara Kiesler

*Hawaii International Conference on Science Systems (HICSS'07)*, Manoa, HI, USA, 2007.

**MiTV: Rethinking Interactive TV.**

Jehan Bing, Jérôme Dubreuil, Joanes Espanol, Luc Julia, Matthew Lee, Martin Loyer and Maklouf Serghine

*Conference on Virtual Systems and Multimedia (VSMM'01)*, Berkeley, CA, 2001.

JOURNAL ARTICLES

**Sensor-based Observations of Daily Living for Aging in Place**

Matthew L. Lee & Anind K. Dey

*Personal and Ubiquitous Computing*. September 2014, pages 1-17.

BOOK CHAPTERS /  
MAGAZINE ARTICLES

**Did I take my meds today?**

Matthew L. Lee

*XRDS: Crossroads – Health Informatics*. Vol 21, Issue 2, Winter 2014, pages 38-43.

**Architecture and Applications of Virtual Coaches**

Matthew L. Lee (contrib.), Daniel Siewiorek, Asim Smailagic, & Anind Dey

In *Quality of Life Technology Handbook*, Richard Schulz (Ed.) CRC Press, 2012

**Smart Lifelogging Technology for Episodic Memory Support.**

Matthew L. Lee & Anind K. Dey

*Smart Healthcare Applications and Services: Developments and Practices*, Röcker, C. & Ziefle, M. (Eds.) IGI Global, 2011.

**Approaches to Authority in Online Disaster Relief Communities after Hurricane Katrina.**

Cristen Torrey, Moira Burke, Matthew Lee, Anind Dey, Susan Fussell, & Sara Kiesler

*Leadership at a Distance*, L. and Weisband, S. (Eds.). Atwater, 2008.

SHORT PAPERS

**Gaze patterns during remote presentations while listening and speaking**

Pernilla Qvarfordt and Matthew Lee

*ETRA '18 Proceedings of the 2018 ACM Symposium on Eye Tracking Research & Applications*

**Managing Family Healthcare with Multimedia Chat Apps: A Survey on What is Missing**

Britta Meixner, Matthew Lee, Scott Carter

*MMHealth '17 Proceedings of the 2nd Intl Workshop on Multimedia for Personal Health & Health Care*

**Wearable Experience Capture for People with Episodic Memory Impairment.**

Matthew L. Kee & Anind K. Dey

*International Symposium on Wearable Computing (ISWC'08)*, Pittsburgh, PA, 2008

**Capture and Access Lifelogging Assistive Technology for People with Episodic Memory Impairment.**

Matthew L. Lee & Anind K. Dey

*Workshop on Intelligent Systems for Assisted Cognition*, Rochester, NY, 2007.

**TrinetraOCR: Augmented camera phone for the visually-impaired.**

Tudor Dumitras, Matthew L. Lee, & Pablo Quinones

*International Symposium on Wearable Computing (ISWC'06)*, Montreux, Switzerland, 2006.

**Capturing and Reviewing Context in Memory Aids.**

Matthew L. Lee & Anind K. Dey

*CHI Workshop on Designing Technology for People w/ Cognitive Impairments*, Montreal, Canada, 2006.

INVITED TALKS

- 2019 **“hataraki-kata kaikaku Supporting Worker Productivity & Well-Being amid a Demographic Shift”**  
HCI Consortium, Pajaro Dunes, CA, May 2019
- 2016 **“The Connected [Work]Life”**  
HCI Consortium, Pajaro Dunes, CA, May 2016
- 2012 **“dwellSense: Wellness Through Sensing and Reflection for Older Adults”**  
Health 2.0 Conference, San Francisco, CA, October 2012
- 2012 **“Sensing and Sense-making of Everyday Actions”**  
HCI Seminar, University of Wisconsin at Madison, April 2012
- 2011 **“Designing and Evaluating Technology for Older Adults”**  
TAGLab, University of Toronto, Toronto, ON, Canada, 2011.
- 2011 **“Older Adults Reflecting on Home Sensor Data”**  
International Symposium on Quality of Life Technology, Toronto, ON, Canada, 2011.
- 2009 **“Creating Salient Summaries for People with Episodic Memory Impairment”**  
First Annual SenseCam Conference, Chicago, IL, 2009.

2007 **“Capture and Access Lifelogging Assistive Technology for Episodic Memory Impairment”**  
Workshop on Intelligent Systems for Assisted Cognition, Rochester, NY, 2007.

PATENTS GRANTED ([https://scholar.google.com/citations?user=\\_Up7LpoAAAAJ](https://scholar.google.com/citations?user=_Up7LpoAAAAJ))

2016 **Methods and Systems for Providing Teleconference Participant Quality Feedback**  
Matthew L. Lee, Scott Carter, Heather Faucett

2014 **Personalized Patient Decision Support For Choosing Self-Care Behaviors**  
Matthew L. Lee & Mariana Nikolova-Simons

2014 **Supporting Patient-Centeredness in Telehealth Communications**  
Matthew L. Lee & Berthel Tate

2009 **Apparatuses and Methods for Lifelogging**  
Anind K. Dey & Matthew L. Lee

2001 **Multi-modal Interactive Television**  
Jehan Bing, Jérôme Dubreuil, Joanes Espanol, Luc Julia, Matthew Lee, Martin Loyer and Maklouf Serghine

#### TECHNICAL SKILLS

Programming: Python, Javascript, Java, C#, C, C++, SQL, HTML5, CSS

Data Analysis: Jupyter Notebook, Jupyter Lab, JMP, (Apache Spark)

Packages: scikit-learn, pandas, PyTorch, OpenPose, D3, ProtoViz, PlotLy, (Keras)

#### SELECTED MEDIA COVERAGE

July 2014 **Je m’enregistre, donc je suis (“I register, therefore I am”)** [bit.ly/2my6SEY](http://bit.ly/2my6SEY)  
Le Temps

September 2010 **Technology Solutions for Age-Related Ills** [bit.ly/2ndZEtq](http://bit.ly/2ndZEtq)  
AARP Bulletin

March 2010 **A Little Black Box to Jog Failing Memory** [nyti.ms/2nJrD0z](http://nyti.ms/2nJrD0z)  
New York Times

March 2010 **CMU to research sensors to track elderly** [bit.ly/2myhNyr](http://bit.ly/2myhNyr)  
Pittsburgh Post-Gazette

March 2010 **Testing the Ability of Embedded Sensors to Detect Onset of Dementia, Infirmity** [bit.ly/2nrUbQ1](http://bit.ly/2nrUbQ1)  
Medical News Today

January 2010 **A Helping Hand from a Robot** [bit.ly/2myhNyr](http://bit.ly/2myhNyr)  
IEEE Spectrum & National Public Radio & National Science Foundation

#### TEACHING

2015 **Guest Lecture:** INFO 6410: Human-Computer Interaction  
Cornell Tech

2009 **Human-Computer Interaction Methods** (05-610), 60 students  
HCI Institute, Carnegie Mellon University  
Teaching Assistant for Bonnie John & John Zimmerman

2008 **Software Architectures for User Interfaces** (05-613), 45 students  
HCI Institute, Carnegie Mellon University  
Teaching Assistant for Scott Hudson

2003 **User Interface Design** (CS 160), 40 students  
EECS Department, University of California, Berkeley  
Teaching Assistant for Jennifer Mankoff

## HONORS + AWARDS

- 2014 Best Paper Award, CHI 2014
- 2011 Best Paper Honorable Mention, CHI 2011 Conference
- 2011 Intel PhD Fellowship Nomination by School of Computer Science
- 2010 \$480,000 ProjectHealth Design Grant, Robert Wood Johnson Foundation
- 2008-09, 2011 Elevator Pitch Competition, First Place, Quality of Life Technology Center
- 2006-08 NSF Graduate Fellowship in Assistive Technology, IGERT program
- 2006 NSF Graduate Research Fellowship, Honorable Mention
- 2002 Phi Beta Kappa, UC Berkeley
- 1999-2003 National Merit Scholarship, Finalist and Scholar
- 2001 U.S. Patent: Multi-modal Interactive Television
- 1999-2001 Dean's List, UC Berkeley
- 1999 Leadership Scholarship, California Alumni Association

## STUDENTS/INTERNS MENTORED

- 2019 Kristin Williams, Ph.D. Carnegie Mellon University
- 2018 Moritz Einfalt, Ph.D. Augsburg University
- 2018 Vincent Tseng, Ph.D. Cornell University
- 2017 Sumeet Jain, M.S. Georgia Tech
- 2016 Heather Faucett, Ph.D. University of California at Irvine
- 2015 Yuanyuan Feng, Ph.D in Information Systems, University of Maryland
- 2015 Pei-Yi Kuo, Ph.D. in Technology and Social Behavior, Northwestern University
- 2013 Berthel Tate, Ph.D. in Computer Science, Bowie State University
- 2012 Kelechi Anyadiiegwu M.S. Human-Computer Interaction, CMU
- 2011 Faye Han, M.S. Human-Computer Interaction, CMU
- 2011 Vinay Vemuri, B.S. Computer Science, CMU
- 2010-11 Xiuyuan Zhang, B.S. Computer Science, CMU
- 2010 William Livingston, B.S. Rehabilitation Science, University of Pittsburgh
- 2009-10 Clive Myrie, B.S. Electrical Engineering, CMU
- 2009 Jonpaul Zelik, B.S. Industrial Eng., Ohio State Univ.
- 2009 Rohith Salim, B.S. Computer Science, CMU
- 2009 Joyce Xu, B.S. Computer Science, CMU
- 2008-09 Akshay Goel, B.S. Computer Science, Chemistry, CMU
- 2007 Jose Ramon Torres, B.S. Computer Science, University of Puerto Rico

## PROFESSIONAL ACTIVITIES / SERVICE

- 2018-2019 ACM CHI Conference, Associate Chair, Health subcommittee
- 2012-2016, 2020 PervasiveHealth Conference, Technical Program Committee Chair
- 2017 ACM Ubicomp Conference, Posters Co-Chair
- 2014-2016 ACM CHI Conference, Associate Chair, Usability and User Studies subcommittee
- 2014 HCI-Korea, Doctoral Consortium Panelist
- 2014 PervasiveHealth Conference, Doctoral Colloquium Panelist
- 2012 UbiComp 2012 Conference, Publications Chair
- 2011 CHI 2012 Workshops Committee/Jury Member
- 2009-10 CHI Works-in-Progress, Committee Member
- 2007-11 Student Leadership Council, Quality of Life Technology Center, Research Chair and President
- 2006 Journal Reviewer, International Journal of Human-Computer Studies

## REFERENCES

available upon request