

# KAYUR PATEL

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**RESEARCH STATEMENT** My research examines how to help programmers use machine learning. I am interested in understanding how programmers apply machine learning, creating new techniques that support the application of machine learning, and building and evaluating software development tools that embody effective techniques.

**EDUCATION** **PhD Student, Computer Science and Engineering**  
**University of Washington**  
Area: HCI, Machine Learning  
Advisors: James Fogarty and James A. Landay  
Thesis: *Lowering the Barrier to Applying Machine Learning*

**MS, Computer Science and Engineering**  
**University of Washington**  
**June 2008**  
Area: HCI, Machine Learning  
Qualifying Project: *Examining the Developer Adoption of Statistical Machine Learning*

**MS, Computer Science**  
**Stanford University**  
**June 2005**  
Focus: AI, Machine Learning, Robotics

**BS, Computer Science and Human Computer Interaction**  
**Carnegie Mellon University**  
**June 2003**  
Graduated Summa Cum Laude and with College Honors

**HONORS** Microsoft Research Graduate Fellowship 2009-2011  
Best Paper Nomination at CHI 2009  
National Defense Science and Engineering Fellowship, 2005 – 2008  
Graduated Summa Cum Laude  
College Honors from Carnegie Mellon University  
Phi Beta Kappa Honor Society  
Phi Kappa Phi Honor Society

**PUBLICATIONS** Available for download at: <http://www.cs.washington.edu/homes/kayur/>

**CONFERENCE** **Patel, K.**, Drucker, S.M., Fogarty, J., Kapoor, A., Tan, D.S. (2010). Using Multiple Models to Understand Data. *Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI 2011)*, 1723-1728

**Patel, K.**, Bancroft, N., Drucker, S., Fogarty, J., Ko, A., Landay, J.A. (2010). Gestalt: Integrated Support for Implementation and Analysis in Machine Learning Processes. *Proceedings of the ACM Symposium on User Interface Software and Technology (UIST 2010)*, 37-46.

Hoffman, R., Amershi, S., **Patel, K.**, Wu, F., Fogarty, J., and Weld, D.S. (2009). Amplifying Community Content Creation with Mixed Initiative Information Extraction. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2009)*, 1849-1858.

Harada, S., Lester, J., **Patel, K.**, Saponas, T.S., Fogarty, J., Landay, J.A., and Wobbrock, J.O. (2008). VoiceLabel: Using Speech to Label Mobile Sensor Data. *Proceedings of the International Conference on Multimodal Interfaces (ICMI 2008)*, 69-76.

**Patel, K.**, Fogarty, J., Landay, J.A., and Harrison, B. (2008). Examining Difficulties Software Developers Encounter in the Adoption of Statistical Machine Learning. *Proceedings of AAAI Conference on Artificial Intelligence (AAAI 2008), Nectar Track*, 1563-1566.

Weld, D.S., Wu, F., Adar, E., Amershi, S., Fogarty, J., Hoffmann, R., **Patel, K.**, and Skinner, M. (2008). Intelligence in Wikipedia. *Proceedings of AAAI Conference on Artificial Intelligence (AAAI 2008), Senior Papers Track*, 1609-1614.

**Patel, K.**, Fogarty, J., Landay, J.A., and Harrison, B. (2008). Investigating Statistical Machine Learning as a Tool for Software Development. *Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI 2008)*, 667-676.

**Patel, K.**, Bailenson, J.N., Hack-Jung, S., Diankov, R., and Bajcsy, R. (2006). The Effects of Fully Immersive Virtual Reality on the learning of physical tasks. *Proceedings of the 9th Annual International Workshop on Presence (PRESENCE 2006)*, 87-94.

**Patel, K.**, Chen, M., Smith, I., and Landay, J.A. (2006). Personalizing Routes. *Proceedings of 19th annual ACM Symposium on User Interface Software and Technology (UIST 2006), Notes Track*, 187-190.

Bodic, P., Friedman, G., Biewald, L., Levine, H., Candea, G., **Patel, K.**, Tolle, G., Hui, J., Fox, A., I. Jordan, M., and Patterson, D. (2005). Combining Visualization and Statistical Analysis to Improve Operator Confidence and Efficiency for Failure Detection and Localization. *In Proceedings of the Second International Conference on Automatic Computing (ICAC 2005)*, 89-100.

**Patel, K.**, Macklem, W., Thrun, S., and Montemerlo, M. (2005). Active Sensing for High-Speed Offroad Driving. *Proceedings of the 2005 IEEE International Conference on Robotics and Automation (ICRA 2005)*, 3162-3168.

**JOURNAL** Bailenson, J.N., **Patel, K.**, Nielsen, A., Bajcsy, R., Jung, S., and Kurillo, G. (2008). The Effect of Interactivity on Learning Physical Actions in Virtual Reality. *Media Psychology*.

Bailenson, J.N., Yee, N., **Patel, K.**, and Beall, A. C. (2008). Detecting Digital Chameleons. *Computers in Human Behavior*, Vol. 24, No. 1, 66-87.

**RESEARCH  
EXPERIENCE**

**Graduate Researcher, University of Washington** **June 2005 – Present**  
*with James Fogarty, James Landay, Andrew Ko, and Steven Drucker*

- Created an integrated development environment for machine learning.  
*with James Fogarty, James Landay, and Beverly Harrison*
- Studied the difficulties developers face when applying machine learning.  
*with James Landay, Mike Chen, and Ian Smith*
- Created an algorithm that provided landmark-based driving directions.

**Research Intern, Microsoft Research, Seattle, WA** **Sept 2009 – Dec 2009**  
*with Steve Drucker, Ashish Kapoor, Desney Tan, and James Fogarty*

- Designed and developed a new method for filtering and sorting training data.

**Research Intern, Microsoft Live Labs, Seattle, WA** **Sept 2007 – Dec 2007**  
*with Steve Drucker, Mukund Narasimhan, and Paul Viola*

- Developed a prototype interface to debug query classification systems.

**Graduate Researcher, Stanford University** **June 2004 – June 2005**  
*with Sebastian Thrun, Mike Montemerlo, and Walter Macklem*

- Created a targeted sensing algorithm based on environmental information.  
*with Jeremy Bailenson and Ruzena Bajcsy*
- Studied learning physical motions in fully immersive VR.

**Undergrad Researcher, Carnegie Mellon University** **June 2001 – Sept 2002**  
*with Alex Rudnicky, Jane Segal, and Dan Bohus*

- Helped build and test wearable speech recognition system.

**TEACHING  
EXPERIENCE**

**CSE590K Research in Computer Science** **Spring 2009**  
**University of Washington**

*with Eytan Adar*

- Created course content, organized invited speakers.

**CSE510 Advanced Topics in Human-Computer Interaction** **Winter 2009**  
**University of Washington**

*with James Fogarty*

- Graded homework and forum posts, held office hours.

**CS221 Introduction to Artificial Intelligence** **Autumn 2004**  
**Stanford University**

*with Andrew Ng*

- Designed/wrote homework, designed/graded exams, led recitation section.

**15-211 Fundamental Data Structures and Algorithms** **Spring 2003**  
**Carnegie Mellon University**

*with Peter Lee, Ananda Gunawardena, and Klaus Sutner*

- Designed/wrote homework, designed/graded exams, led recitation section.

**15-111 Introduction to Programming** **Fall 2002**  
**Carnegie Mellon University**

*with Mark Stehlik*

- Designed/wrote homework, designed/graded exams, led recitation section.

- SERVICE**    **Prospective Student Committee**    **2006 – 2010**  
**UW CSE Department**  
Planned visit day events for prospective graduate students.
- Graduate Student Coordinator**    **2008 – 2009**  
**UW CSE Department**  
Acted as the official liaison between the faculty and the graduate students.
- Graduate Student Senator**    **2008 – 2009**  
**University of Washington, Seattle**  
Participated in discussions about issues relating to all aspects of student life.
- New Graduate Orientation Committee**    **2006 – 2007**  
**UW CSE Department**  
Co-Chaired new graduate student orientation in 2006.
- CSE Holiday Student Skit Committee**    **2005 – 2007**  
**UW CSE Department**  
Helped plan and run holiday skit.
- Paper Reviewer**  
UbiComp2007, CHI2008, UIST2008, InfoVis2008, CHI2009, CHI2010, UIST2010, IUI2011, AAAI2011, CHI2011
- Student Volunteer**  
CHI2008

**REFERENCES**

James Fogarty, Ph.D.  
Associate Professor  
Computer Science and Engineering  
University of Washington, Seattle  
Paul Allen Center 101  
Box 352350  
Seattle, WA 98195-2350  
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James Landay, Ph.D.  
Short-Dooley Professor  
Computer Science and Engineering  
University of Washington, Seattle  
Paul Allen Center 101  
Box 352350  
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Other references available upon request.