

# **Kent Lyons**

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## EDUCATIONAL BACKGROUND

Degree	Year	University	Field
<b>Ph.D.</b>	2005	Georgia Institute of Technology, Atlanta, GA., USA. “Improving Support of Conversations by Enhancing Mobile Computer Input” <i>Advisor: Thad Starner</i>	<i>Computer Science</i>
<b>M.S.</b>	2001	Georgia Institute of Technology, Atlanta, GA., USA. <i>Advisor: Thad Starner</i>	<i>Computer Science</i>
<b>B.S.</b>	1999	Georgia Institute of Technology, Atlanta, GA., USA. <i>Highest Honors</i>	<i>Computer Science</i>

## EMPLOYMENT HISTORY

Title	Organization	Years
<b>Research Scientist</b>	College of Computing Georgia Institute of Technology, Atlanta, GA., USA	<i>2005-present</i>
<b>Research Intern</b>	Intel Research Berkeley CA., USA Worked with Anind Dey on use of sensor network data on mobile platforms.	<i>2002</i>
<b>Associate Scientist</b>	Charmed Technologies Atlanta, GA., USA Worked on next generation wearable computing platform.	<i>2001</i>
<b>Research Intern</b>	Compaq Western Research Laboratory Palo Alto CA., USA Worked with Bob Mayo on the Factoid. Developed hardware and software for a location based messaging system.	<i>2000</i>
<b>Undergraduate Research Assistant</b>	College of Computing Georgia Institute of Technology, Atlanta, GA., USA Worked with Gregory Abowd, Irfan Essa and Christopher Atkeson on embedded systems for ubiquitous computing.	<i>1998–1999</i>

## CURRENT FIELDS OF INTEREST

My research interests focus on the areas of Human–Computer Interaction, Mobile and Ubiquitous Computing, and Wearable Computing. My dissertation work was on improving mobile input and exploring ways to enhance conversations. I have researched two techniques: reusing conversational information through dual–purpose speech and increasing a user’s data entry capability with the Twiddler chording keyboard. More generally, I am interested in the integration of HCI and mobile devices and their use to enhance everyday life. I am interested in exploring the application of novel technology in a user centered way and bridging the gap between these styles of research.

## I. TEACHING

### A. Courses Taught

Term/Year	Course Number & Title	Number of Students	Comments
<b>College of Computing, Georgia Institute of Technology.</b>			
Spring, 2006	CS 4750 Human-Computer Interface Design & Evaluation	34	
Spring, 2006	CS 8001 Human-Computer Interaction Seminar	9	
Fall, 2006	CS 8001 Human-Computer Interaction Seminar	16	

### B. Teaching Assistant

Term/Year	Course Number & Title	Number of Students	Comments
<b>College of Computing, Georgia Institute of Technology.</b>			
Spring, 2000	CS 7470 Mobile and Ubiquitous Computing Taught by Thad Starner and Elizabeth Mynatt	33	

### C. Individual Student Guidance

#### Amy Hurst (CoC)

2000

*Undergraduate research on embedded electronics and radio positioning. Currently a Ph.D. student at CMU.*

#### Nirmal Patel (CoC)

2000 – Present

Publications: C.1.6, C.1.15

*Undergraduate and MS CS work on the Twiddler, Dual-Purpose Speech, and Mobile Display Evaluations.*

#### Daniel Plaisted (CoC)

Fall 2003 – Spring 2004

Publications: C.1.7, C.1.9

*PhD student aiding with Twiddler experiments.*

#### Christopher Skeels (CoC)

Summer 2004 – Spring 2005

Publications: C.1.8

*MS CS work on the implementation of Dual-Purpose Speech Applications.*

#### Brian Gane (Psychology)

Summer 2004

Publications: C.1.10, B.1.1

*PhD student aiding with the evaluation of novice Twiddler learning.*

#### James Fusia (CoC)

Summer 2003

Publications: C.1.7, D.3.1

*Undergrad working on developing the Twidor.*

**Richard Baliey** (CoC)

*Spring 2004*

Publications: *C.1.7, D.3.1*

*Undergrad working on developing the Twidor.*

**Kristin Vadas** (CoC)

*Fall 2004 – Spring 2006*

Publications: *D.2.2, C.1.15*

*MS CS work on evaluating mobile displays on the go.*

**James Clawson** (CoC)

*Fall 2004 – Summer 2005*

Publications: *C.1.11, C.1.13*

*MS HCI work on Mini-Qwerty keyboard evaluation.*

**MyungChoel Doo** (CoC)

*Fall 2005 – Spring 2006*

Publications: *C.1.14*

*MS CS work on Korean Twiddler and text entry.*

## II. RESEARCH AND CREATIVE SCHOLARSHIP

### A. Thesis

#### Ph.D. Thesis

Title: *“Improving Support of Conversations by Enhancing Mobile Computer Input.”*

Date Completed: *August 2005,*

Advisor: *Dr. Thad Starner,*

University: *Georgia Institute of Technology.*

### B. Published Journal Papers (refereed)

- B.1.1. K. Lyons, B. Gane, and T. Starner. “Experimental Evaluations of the Twiddler One-Handed Chording Mobile Keyboard.” *Human-Computer Interaction*. Volume 21(4), pp. 343–392, 2006.

### C. Conference Presentations

#### C.1. Conference Presentations with Proceedings (refereed)

*[Publication (as a full paper, a short paper or a technical note) in peer refereed conference/workshop proceedings.]*

- C.1.15. K. Vadas, N. Patel, K. Lyons, T. Starner, and J. Jacko. “Reading On-the-Go: A Comparison of Audio and Hand-held Displays.” *Proceedings of Mobile HCI 2006*. Espoo, Finland. September 2006. 24% acceptance.
- C.1.14. M.C. Doo, K. Lyons, T. Starner. “The Korean Twiddler: One-handed Chording Text Entry for Korean Mobile Phones.” *Extended Proceedings of CHI 2006*. Montreal, Canada. April 2006.
- C.1.13. J. Clawson, K. Lyons, T. Starner, and E. Clarkson. “The Impacts of Limited Visual Feedback on Mobile Text Entry for the Twiddler and Mini-QWERTY Keyboards.” *Proceedings of the International Symposium on Wearable Computers*. Osaka, Japan. November 2005. 25% acceptance. **Nominated for Best Paper Award.**

- C.1.12. K. Lyons, C. Skeels, and T. Starner. "Providing Support for Mobile Calendaring Conversations: A Wizard of Oz Evaluation of Dual-Purpose Speech." Proceedings of Mobile HCI 2005. Salzburg, Austria. September 2005. 21% acceptance.
- C.1.11. E. Clarkson, J. Clawson, K. Lyons, and T. Starner. "An Empirical Study of Typing Rates on mini-QWERTY Keyboards." Extended Proceedings of CHI. Portland, OR. April 2005.
- C.1.10. K. Lyons, B. Gane, T. Starner, and R. Catrambone. "Improving Novice Performance on the Twiddler One-Handed Chording Keyboard." Proceedings of the International Forum on Applied Wearable Computing. Zurich, Switzerland. March 2005.
- C.1.9. K. Lyons, D. Plaisted, and T. Starner. "Expert Chording Text Entry on the Twiddler One-Handed Keyboard." Proceedings of the International Symposium on Wearable Computers. Arlington, VA. November 2004. pp. 94-101. 23% acceptance.
- C.1.8. K. Lyons, C. Skeels, T. Starner, C.M. Snoeck, B.A. Wong, and D. Ashbrook. "Augmenting Conversations Using Dual-Purpose Speech." Proceedings of UIST 2004. Sante Fe, NM. October 2004. pp. 237-246. 20 % acceptance.
- C.1.7. K. Lyons, T. Starner, D. Plaisted, J. Fusia, A. Lyons, A. Drew, and E. W. Looney. "Twiddler Typing: One-Handed Chording Text Entry for Mobile Phones." Proceedings of CHI 2004. Vienna, Austria. April 2004. 16% acceptance.
- C.1.6. K. Lyons, N. J. Patel and T. Starner. "KeyMenu: A Keyboard Based Hierarchical Menu." Proceedings of the International Symposium on Wearable Computers. White Plains, NY. October 2003.
- C.1.5. K. Lyons. "Everyday Wearable Computer Use: A Case Study of an Expert User." Proceedings of Mobile HCI 2003. Udine, Italy. September 2003. 33% acceptance.
- C.1.4. E. M. Huang, M. Terry, E. Mynatt, K. Lyons, and Alan Chen. "Distributing Event Information by Simulating Word-of-Mouth Exchanges." Proceedings of Mobile HCI 2002. Pisa, Italy. September 2002.
- C.1.3. K. Lyons and T. Starner. "Mobile Capture for Wearable Computer Usability Testing." Proceedings of the International Symposium on Wearable Computers. Zurich, Switzerland, October 2001, pp. 69-76. 30% acceptance.
- C.1.2. K. Lyons, L. Harvel, and T. Starner. "A Context-based Document System for Wearable Computers." Proceedings of the International Symposium on Wearable Computers. Atlanta, GA, October 2000, pp. 187-188.
- C.1.1. K. Lyons, M. Gandy, and T. Starner. "Guided by Voices: An Audio Augmented Reality System." International Conference on Auditory Display (ICAD). Atlanta, GA, April 2000, pp. 57-62.

## **C.2. Doctoral Consortium**

- C.2.1. K. Lyons. "Enhancing Support of Conversations by Improving Mobile Computing Input." Extended Abstracts of UIST 2004. Sante Fe, NM. October 2004.

### **C.3. Conference Presentations with Proceedings (non-refereed)**

- C.3.2. K. Lyons, and Thad Starner. "Augmenting Cognition with Wearable Computers." Human Computer Interaction International (HCII), Las Vegas, NV. July 2005. (due to publisher, no page number available).
- C.3.1. T. Starner, B. Leibe, B. Singletary, K. Lyons, M. Gandy, and J. Pair. (invited paper) Towards Augmented Reality Gaming. Proc. of IMAGINA, Monte Carlo, January 2000.

### **C.4. Conference Presentations: Tutorial and Courses**

- C.4.2. T. Pering and K. Lyons. "Stargate Wearable Platform." Tutorial (3 hours) at ISWC. Osaka, Japan. November 2005. 15 attendees.
- C.4.1. T. Starner and K. Lyons. "Wearable and Mobile Human Computer Interaction." Tutorial (3 hours) at ISWC. Arlington, VA. November 2004. 35 attendees.

## **D. Other**

### **D.1. Published Papers (non-refereed)**

- D.1.3. D. Ashbrook, K. Lyons, and J. Clawson. "Capturing Experiences Anytime, Anywhere." *IEEE Pervasive Computing*, 5(2): pp. 6-7, 2006.
- D.1.2. T. Starner, K. Lyons, and R. Grinter. "Missing the Wave? Scattershot Funding Has Its Costs." *IEEE Pervasive Computing*, 4(1): pp. 80-82, 2005.
- D.1.1. T. Starner, B. Leibe, B. Singletary, K. Lyons, M. Gandy, and J. Pair. (informal review) "Exploring Mobile and Desk-based Gaming Appliances." Sidebar in "Survey on Information Appliances." *IEEE Computer Graphics and Applications (CGA)*, 20(3): p. 22, May 2000.

### **D.2. Technical Reports**

- D.2.2. K. Vadas, K. Lyons, D. Ashbrook, J. S. Yi, T. Starner, and J. Jacko. "Reading on the Go: An Evaluation of Three Mobile Display Technologies." Graphics Visualization and Usability Center Tech Report 06-09. 2006.
- D.2.1. K. Lyons, C. Kidd, and T. Starner. "Widespread Easy and Subtle Tracking with Wireless Identification Networkless Devices - WEST WIND: an Environmental Tracking System." Graphics Visualization and Usability Center Tech Report 00-15. 2000.

### **D.3. Software**

- D.3.2. "X Server for I-O Data CFXGA & Epson S1D13806." K. Lyons. 2005.
- D.3.1. "Twidor: The Twiddler Typing Tutor and Experimental Platform." J. Fusia, D. Plaisted, R. Baliey, K. Lyons. 2003-2005.

### **D.4. Videos and Demonstrations**

- D.4.1. K. Lyons, D. Plaisted, and T. Starner. Twiddler typing. CNN Headline News live demonstration, Atlanta, GA, September 2003.

## **E. Research Proposals and Grants (Principal Investigator)**

### **1. Approved and Funded**

#### **E.1.1 Evaluation of Interaction on Mobile Phones**

Sponsor: Panasonic Wireless Design Center

Investigator(s): K. Lyons

Amount: \$7,000 (*Equipment*)

*Submitted and Funded July 2005.*

## **F. Research Proposals and Grants (Contributor)**

### **1. Approved and Funded**

#### **F.1.1 Capture Resistant Environment**

Sponsor: Georgia Research Alliance

Investigator(s): G. Abowd (PI), J. Clawson, K. Lyons, J. Summet and S. Patel

Amount: \$50,000 for 5 months.

*Submitted: November 2005. Funded: December 2005.*

### **2. Pending**

#### **F.2.1 Wearable Remote Control for Operator Training Simulators**

Sponsor: GSE Systems

Investigator(s): K. Lyons(PI) and T. Starner

Amount: \$30,000 for 2 months.

*Submitted: July 2006.*

## **G. Honors and Awards**

- Governor's Scholarship 1995
- Hope Scholarship 1995-1999
- Golden Key Honor Society 1997-1999
- Gamma Beta Phi Honor Society 1997-1999
- Nominated Best Paper ISWC 2005 (C.1.13).

## **III. SERVICE**

### **A. Professional Activities**

#### **A.1. Memberships and Activities in Professional Societies**

- Member, Institute of Electrical and Electronics Engineers (IEEE).
- Member, Association for Computer Machinery (ACM).

### **A.2. Conference Committee Activities**

- Student Volunteer Chair and Publicity Co-Chair, , *International Symposium on Wearable Computing (ISWC)*, White Plains, New York, October 2003.
- Member of Program Committee, Doctoral Consortium Committee and Workshop Chair, *International Symposium on Wearable Computing (ISWC)*, Montroux, Switerland, October 2006.
- Member of Poster Committee, *User Interface Software and Technology (UIST)*, Montroux, Switerland, October 2006.
- Member of Program Committee, *International Workshop on Smart Appliances and Wearable Computing (IWSAWC)*, Lisbon, Portugal, July 2006.
- Organizing Committee, *International Workshop on Smart Appliances and Wearable Computing (IWSAWC)*, Toronto, Canada, July 2007.

### **B. Consulting, Advisory, and Other External Appointments**

- Consultant, Devonwood Logistics. Consulting for Jones Day for Fortune 500 company. Atlanta, GA, USA, 2006.

## **IV. NATIONAL AND INTERNATIONAL PROFESSIONAL RECOGNITION**

### **A. Invited Conference Session Chair**

- CHI 2006, Montreal Canada. Session on Mobile Surfing and Effects of Wearables.
- ISWC 2006, Montreux, Switzerland. Session on Input Devices and Sensors.

### **B. Editorial and Reviewer Work for Technical Journals and Publishers**

- Special Issue of Pervasive and Ubiquitous Computing on Interactive Mobile Access, 2004.
- CHI 2005-2007.
- Context 2005.
- IEEE CG&A special issue on Moving Mixed Reality into the Real World, 2005.
- ETRI Journal special issue on Next-Generation PC Technology, 2006
- UIST 2005, 2006.
- Mobile HCI 2005, 2006.
- Pervasive 2007
- Web Intelligence and Agent Systems (WIAS) 2006.
- ISWC 2003, 2005, 2006

## V. OTHER CONTRIBUTIONS

### A. Seminar Presentations (Invited Papers and Talks at Meetings and Symposia)

- A.1.8. K. Lyons. “Using Mobile Wireless Technology in Rehabilitation and Community Re-Integration of Individuals with Disabilities.” Invited talk at Touch the Future 2006 Assistive Technology and Transition Conference and 8th Georgia Workforce Conference. Athens, GA. October 31st, 2006.
- A.1.7. T. Starner and K. Lyons. “Overview of Wearable Computing Research and Challenges.” Invited lecture at Georgia State University. Atlanta, GA. February 21, 2006.
- A.1.6. K. Lyons. “Wearable Computing.” Invited talk at the GITA Southeast Chapter 12th Annual Conference. Marietta, GA. October 5, 2005.
- A.1.5. K. Lyons. “Improving Support of Conversations by Enhancing Mobile Computer Input.” Invited talk at Intel Research. Santa Clara, CA. May 3, 2005.
- A.1.4. K. Lyons. “Improving Support of Conversations by Enhancing Mobile Computer Input.” Invited talk at Intel Research. Seattle, WA. April 21, 2005.
- A.1.3. K. Lyons. “Wearable Computing Research and Assistive Technology.” Invited talk at the Wireless RERC. Atlanta, GA. March 10, 2005.
- A.1.2. K. Lyons and T. Starner. “Twiddler Typing: Text Entry for Mobile Phones.” Invited talk at Panasonic Wireless Design Center. Suwanee, GA. December 12, 2003.
- A.1.1. K. Lyons. “Wearable Computers: What is that and what is it used for?” Invited talk to UC Berkeley’s Group for User Interface Research. Berkeley, CA. July 12, 2002.