

NIRMAL J. PATEL

Contact Info

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Research Interests

My research focuses on the area of Mobile Human Computer Interaction. I am exploring the implementation and evaluation of highly-synchronous applications for groups of mobile, collocated users. I am interested in how mobile phones can be leveraged to enhance existing collocated interaction as well as how that could open up new forms of interaction. My primary focus is on applications which facilitate face-to-face interaction without getting in the way of existing practices. Using quantitative and qualitative methods, I also investigate how current mobile device interfaces are used and can be improved. Most recently, I have designed and evaluated Mobiphos, an application which allows collocated groups of users to capture and share photographs in realtime. This application has been evaluated in both civilian and military settings both in the US and internationally.

Education

- 2007 - present** **Ph.D. Computer Science**
Georgia Institute of Technology, Atlanta, Georgia
Specialization: Human Computer Interaction
Advisor: Professor Thad Starner
- 2005 - 2007** **M.S. Computer Science**
Georgia Institute of Technology, Atlanta, Georgia
Specialization: Human Computer Interaction
GPA: 3.75
- 2001 - 2005** **B.S. Computer Science**
Georgia Institute of Technology, Atlanta, Georgia
Specialization: Intelligence Systems
GPA: 3.73

Work Experience

- 08/2005 – present** **Graduate Research Assistant**
Contextual Computing Group (CCG),
Georgia Institute of Technology, Atlanta, GA

Implemented and evaluated projects in the area of collocated use of mobile devices. Projects included study of aural/visual displays, quantification of mobile device access time, use of collocated media sharing in both civilian (Samsung) and military (DARPA ASSIST) applications and the design of more ergonomic input devices for mobile users.

See <http://nirmalpatel.com/research.html> for more details.

01/2010 – 05/2010

Graduate Teaching Assistant

Georgia Institute of Technology, Atlanta, GA

Provided assistance for undergraduate class called The Art of Prototyping Intelligent Appliances (APIA). APIA is class which engages undergraduate students in building physical prototypes in addition to writing software. Duties involve procuring materials needed by students and spending time outside of class explaining more detailed issues when trying to build practical, real world usable prototypes.

05/2009 – 08/2009

Research Intern

Intel Labs, Santa Clara, CA

Worked on HCI issues regarding use of direct input on tiled display systems. Specifically concerned with performing drag actions across multiple displays. Used a two-stage process to first determine how the user reacts to the bezels between displays followed by creation and evaluation of a technique to mitigate interference of the bezel.

08/2007 – 12/2007

Graduate Teaching Assistant

Georgia Institute of Technology, Atlanta, GA

Provided assistance and created teaching materials for the Mobile and Ubiquitous Computing class. Setup \$100,000 rapid prototyping lab and explained how to use equipment as well as how to build circuitry required for implementing projects. Provided individual guidance to approximately 20 groups of students. Seven groups went on to publish papers in academic conferences. Two students joined the CCG and became Graduate Research Assistants.

05/2006 – 08/2006

Research Intern

Motorola Labs, Schaumburg, IL

Worked with existing platforms to create rhythm and dance games for mobile phones. The games leveraged wireless sensors placed in player's shoes as the main form of input. I was later provided with funding for pursuing my first year of my Ph.D. program. The prototype was later shown by Motorola during Linux World 2006 and CTIA 2006.

See <http://nirmalpatel.com/research/mdr.html> for more details and a demo video.

01/2003 – 12/2003

Undergraduate Teaching Assistant

Georgia Institute of Technology Atlanta, GA

I was the first point of contact for students in Georgia Tech's Introduction to Computer Science course. Graded and provided individual feedback on all assignments for approximately 20 students. Held weekly lecture for students to cover material presented in class and provide extra guidance.

01/2001 – 05/2005

Undergraduate Research Assistant

CCG, GVU, Georgia Institute of Technology, Atlanta, GA

Starting in freshman year, provided technical and programming support for group projects. Developed infrastructure to allow for rapid development of mobile speech based applications and used the infrastructure to develop Dialog Tabs, Speech Courier and Calendar Navigation Agent.

Journal Papers

1. Mobiphos: A study of user engagement with a mobile collocated-synchronous photo sharing application. **Nirmal Patel**, James Clawson, Amy Volda and Kent Lyons. International Journal of Human Computer Studies (2009).

Conference Papers

1. A Study of Cultural Effects on Mobile-Collocated Group Photo Sharing. **Nirmal J. Patel**, James Clawson, Namwook Kang, SeungEok Choi, Thad Starner. Proceedings of GROUP 2010. Sanibel Island, FL, USA. November 7-10, 2010.
2. A Model of Two-Thumb Chording on a Phone Keypad. **Nirmal Patel**, James Clawson and Thad Starner. Proceedings of MobileHCI 2009. Bonn, Germany, September 15-18. 2009. **Best Paper Nomination** (24% Acceptance Rate)
3. Mobiphos: A Collocated-Synchronous Mobile Photo Sharing Application. James Clawson, Amy Volda, **Nirmal Patel** and Kent Lyons. Proceedings of MobileHCI 2008. Amsterdam, The Netherlands, September 2-5. 2008. (25% Acceptance Rate)
4. Quickdraw: The Impact of Mobility and On-Body Placement on Device Access Time. Daniel Ashbrook, James Clawson, Kent Lyons, **Nirmal Patel**, Thad Starner. Proceedings of CHI 2008, Florence, Italy. Apr 5-10, 2008. (22% Acceptance Rate)
5. A Clinically Affordable Non-Contact Wound Measurement Device. Mark Duckworth, **Nirmal Patel**, Aditya Joshi, and Shawn Lankton. Proceedings of RESNA. 2007.
6. Reading On-the-Go: A Comparison of Audio and Hand-held Displays. Kristin Vadas, **Nirmal Patel**, Kent Lyons, Thad Starner, and Julie Jacko. Proceedings of Mobile HCI 2006. Espoo, Finland. September 2006. (25% Acceptance Rate)
7. KeyMenu: A Keyboard Based Hierarchical Menu. Kent Lyons, **Nirmal Patel** and Thad Starner. Proceedings of ISWC 2003, White Plains, NY. October 2003.

Workshops

1. Digital Kick in the Shin: On-body communication tools for couples trapped in face-to-face group conversations. James Clawson, **Nirmal Patel** and Thad Starner. Workshop at Mobile HCI 2008. Lisbon, Portugal. Sep. 7th, 2010.
2. Exploring Computer Augmented Communication through an Examination of the Collocated Use of Multiple Mobile Displays. James Clawson, **Nirmal Patel** and Thad Starner. Workshop at CSCW 2008. San Diego, CA, USA. Nov. 8, 2008.
3. Introduction to Mobile Application with On-Body Sensing Design: Why Desktop Emulators are not enough. **Nirmal Patel**, Tracy Westeyn, Valerie Summet. Workshop Organizers at ISWC 2007. Boston, MA, USA. Oct. 13, 2007.

Posters

1. Many Tabs Make a Light Board. Mobile HCI 2010 DC.
Poster ACM
2. Two-Thumb Chording Poster. Georgia Tech Undergraduate Research Symposium. Phong Su Si, **Nirmal Patel** and Thad Starner. Spring 2010.
More... **Best Poster Award for College of Computing**
3. DEAF 911 Poster **Nirmal Patel**, Ketaki Deo, Zahoor Zafrulla and Thad Starner. Computing at the Margins Symposium. 2009.
More...

Patents

1. U.S. Patent US-2010-0091104-A1, **Systems And Methods For The Measurement Of Surfaces**, Issued: April, 15, 2010.

Professional Activities

- 2010-2011** CHI 2011 Proceedings co-chair
Pervasive 2011 Web Chair
- 2010** Judge for Georgia Institute of Technology Undergraduate Research Symposium
Mentored undergraduate student Phong Su Si. He won the undergraduate research award for the College of Computing in the Georgia Institute of Technology Undergraduate Research Symposium
- 2009** Reviewer: CHI, International Journal on Human Computer Studies, Pervasive

Health

- 2008** Liaison for CCG during work with Samsung Research
- 2007** Mentored undergraduate student Scott Gilliland in completion of a Senior Research Project. <http://nirmalpatel.com/research/curveball.html>
Gave talk on in-car gesture controlled systems to Toyota ITC Research in Palo Alto

Demonstrations

- 02/2009** Supporting equal access to mobile E911 for deaf users through the implementation of a software TTY for cell-phones, presented at NENA Conference, Orlando, FL
- 10/2008** Travelled to Samsung Labs in Suwon, Korea to present work and give demonstrations of Mobiphos
- 08/2006** Presented Mobile Dance Revolution at LinuxWorld in San Francisco. Maintained technology for demonstration and spoke with guests

Honors and Awards

- 2001** President's Undergraduate Research Award
- 2001 - 2005** Hope Scholarship

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