

# Timothy Sohn

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## Education

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Sept 2003 – Present **Ph.D. Candidate, Computer Science, University of California at San Diego**  
Thesis Topic: *Addressing the Needs of Mobile Users*  
Advisor: William Griswold  
Expected Graduation: June 2008

Sept 2003 – June 2005 **M.S., Computer Science and Engineering, University of California at San Diego**  
Aug 1999 – May 2003 **B.S., Electrical Engineering and Computer Science, University of California at Berkeley**

## Professional Employment

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Sept 2003 – Present **Research Assistant**, University of California at San Diego, with Prof. William Griswold  
Investigated infrastructure support and applications to support the needs of mobile users.

Developing Trickle, a mobile system that analyzes one's digital history in order to predict possible mobile information needs. Implemented a prototype system on Windows Mobile (C#) that uses GPS coordinates to discover nearby businesses and fuse the information with personal data (e.g., web history, email, chat history) to provide relevant contextual information. *Has led to one workshop paper at Ubicomp 2007 [W.6].*

Conducted a diary study to learn what types of information needs mobile users have, and to learn what infrastructure and applications would best support them. Gathered diary data from 20 participants over a two-week period. *Has led to one full paper at CHI 2008 [C.12].*

Helped evaluate a mobile phone application for caloric intake in conjunction with the UCSD Family and Preventative medicine group. *Has led to one full paper at Pervasive Health 2006 [C.11].*

Helped develop Pepletone, a system for buddy awareness through mobile peripheral cues. Implemented location algorithm on Windows Mobile (C#) to determine if two people are nearby. Evaluated application with 17 participants for two weeks. *Has led to one full paper at Mobisys 2008 [C.13] and one technical report [T.5].*

Designed and implemented Place-Its, a location-based reminder application using J2ME/Symbian C++ on Nokia Series 60 phones. Evaluated application with 10 participants over two weeks. *Led to one full paper at Ubicomp 2005 [C.5].*

Aug 2007 – Sept 2007 **Consultant**, Pace For Moms  
Conducted web usability testing for the iMom application, a 16-week online program for helping moms lose the "baby weight".

Aug 2006 – Jan 2007 **Consultant**, Biztelligence.com  
Designed and implemented a prototype location-based application for Windows Mobile phones. The location infrastructure uses an 802.11-based positioning system in order to correctly locate the device and deliver relevant content (e.g., text/video).

Jun 2006 – Sep 2006 **Research Intern**, Motorola Labs, with Dr. Larry Marturano and Guy Romano  
Helped implement a prototype for Motorola's social TV concept. Implemented frontend widgets for GB-PVR (using C#) to display user's presence, and enable buddies to watch TV together.

Apr 2006 – Jun 2006 **Teaching Assistant**, University of California at San Diego  
Teaching assistant for undergraduate discrete mathematics course. Responsibilities included teaching discussion sections, tutoring students, and grading homework assignments and exams.

- Jun 2005 – Dec 2005 **Research Intern**, Intel Research Seattle, with Dr. Anthony LaMarca  
 Developed an algorithm that detects a person's mobility state (*i.e.* at a place, walking, driving) based solely on GSM signals. Implemented GSM logging application in C# on Windows Mobile phones. Algorithms developed using machine learning techniques from the Weka toolkit. *Has led to one full paper at Ubicomp 2006 [C.10] and one workshop paper [W.5].*
- Helped implement the Privacy Observant Location System (POLS) for Windows Mobile phones (C#). Wrote code to evaluate accuracies of different location technologies using the POLS toolkit. Our team analyzed GSM data from a 208-hour, 4350 km wardrive trace in the city of Seattle. *Has led to one full paper at Ubicomp 2006 [C.9] and one paper at WMCSA [C.6].*  
<http://pols.sourceforge.net>
- Jun 2004 – Nov 2004 **Research Intern**, Intel Research Cambridge, with Dr. James Scott  
 Extended the Place Lab toolkit to use GSM and Bluetooth radios for beacon-based positioning in addition to 802.11. Wrote J2ME and Symbian software to run on Series 60 phones. *Has led to one full paper at Pervasive 2005 [C.2], one full paper at ICSE 2006 [C.8] and one poster at WMCSA 2004 [c.2].*
- Used Place Lab to help develop Reno, a location disclosure application that allows members in a social group to manually or automatically share their location via their mobile phone. *Has led to one full paper at Pervasive 2005 [C.3] and one full paper at Ubicomp 2005 [C.4].*  
<http://www.placelab.org>
- May 2002 – May 2003 **Research Assistant**, University of California at Berkeley, with Prof. Anind Dey  
 Designed and implemented the interactive Context-Aware Prototyper (iCAP), a visual environment to support end users in building context-aware applications. *Led to one full paper at Pervasive 2006 [C.7], one poster at CHI 2003 [c.1] and one technical report [T.1].*
- May 2002 – May 2003 **Software Engineer**, Cisco Systems  
 Helped design and write automation test code for the PIX Firewall Management Console. Used Winrunner to develop four different automation test suites
- Jan 2002 – May 2002 **Research Assistant**, University of California at Berkeley, with Prof. James Landay  
 Helped develop WebQuilt, a web logging and visualization system to assist web designers in performing remote usability testing. Added the ability for audio feedback and support for mobile devices. *Has led to one full paper at AVI 2002 [C.1].*  
<http://guir.berkeley.edu/webquilt>
- May 2001 – Aug 2001 **Research Intern**, Ericsson Bay Area Research Center, with Stephan Baucke  
 Implemented and tested the TCP-Friendly Rate Control mechanism to evaluate its performance over wireless links. Helped design and implement this congestion control mechanism in the Datagram Congestion Control Protocol (DCCP)  
<http://www.cs.ucsd.edu/~tsohn/projects/dccp/index.html>
- May 2000 – July 2001 **Research Assistant**, University of California at Berkeley, with Dr. Helen Wang and Prof. Randy Katz  
 Designed a preference manager user interface to assist users in developing personal communication preferences for the ICEBERG Universal Inbox System  
<http://iceberg.cs.berkeley.edu/>

## Publications

### Refereed Conference Papers

- [C.13] K.A. Li, **T. Sohn**, S. Huang, and W.G. Griswold. PeopleTones: A System for Delivering Buddy Proximity Cues on Mobile Phones. To Appear in *Mobisys 2008*. [18% acceptance rate]
- [C.12] **T. Sohn**, K.A. Li, J. Hollan, and W.G. Griswold. A Diary Study of Mobile Information Needs. To Appear in *CHI 2008*. [22% acceptance rate]

- [C.11] C. C. Tsai, G. Lee, F. Raab, G. J. Norman, **T. Sohn**, W.G. Griswold, and K. Patrick. Usability and Feasibility of PmEB: A Mobile Phone Application for Monitoring Real Time Caloric Balance In Proceedings of the *First International Conference Pervasive Computing Technologies for Healthcare*. Innsbruck, Austria, 2006.
- [C.10] **T. Sohn**, A. Varshavsky, A. LaMarca, M.Y. Chen, T. Choudhury, I. Smith, S. Consolvo, J. Hightower, W.G. Griswold, E. de Lara. Mobility Detection Using Everyday GSM Traces. In Proceedings of the *Eighth International Conference on Ubiquitous Computing (UbiComp)*. Irvine, California, pp. 212-224, 2006. [13% acceptance rate]
- [C.9] M.Y. Chen, **T. Sohn**, D. Chmelev, D. Haehnel, J. Hightower, J. Hughes, A. LaMarca, F. Potter, I. Smith, A. Varshavsky. Practical Metropolitan-Scale Positioning for GSM Phones. In Proceedings of the *Eighth International Conference on Ubiquitous Computing (UbiComp)*. Irvine, California, 2006. [13% acceptance rate]
- [C.8] **T. Sohn**, W.G. Griswold, J. Scott, A. LaMarca, Y. Chawathe, I. Smith, M.Y. Chen. Experiences with Place Lab: an Open Source Toolkit for Location-Aware Computing. In Proceedings of *ICSE 2006*, Experience Track. [18% acceptance rate]
- [C.7] A.K. Dey, **T. Sohn**, S. Streng, J. Kodama. iCAP: Interactive Prototyping of Context-Aware Applications. In Proceedings of *Fourth International Conference on Pervasive Computing*, Dublin, Ireland, 2006. [13% acceptance rate]
- [C.6] A. Varshavsky, M. Chen, E. de Lara, J. Froehlich, D. Haehnel, J. Hightower, A. LaMarca, F. Potter, **T. Sohn**, K. Tang, I. Smith. Are GSM phones THE solution for Localization? In Proceedings of *WMCSA 2006*. [30% acceptance rate]
- [C.5] **T. Sohn**, K.A. Li, G. Lee, I. Smith, J. Scott, W.G. Griswold. Place-Its: A Study of Location-Based Reminders on Mobile Phones. In Proceedings of *Seventh International Conference on Ubiquitous Computing (UbiComp 2005)*. Tokyo, Japan, pp. 232-250 2005. [9% acceptance rate]
- [C.4] G. Iachello, I. Smith, S. Consolvo, G.D. Abowd, J. Hughes, J. Howard, F. Potter, J. Scott, **T. Sohn**, J. Hightower, A. LaMarca. Control, Deception, and Communication: Evaluating the Deployment of a Location-Enhanced Messaging Service. In Proceedings of *Seventh International Conference on Ubiquitous Computing (UbiComp)*. Tokyo, Japan, pp. 213-231 2005. [9% acceptance rate]
- [C.3] I. Smith, S. Consolvo, A. LaMarca, J. Hightower, J. Scott, **T. Sohn**, J. Hughes, G. Iachello, G.D. Abowd. Social Disclosure of Place: From Location Technology to Communication Practice. In Proceedings of *Third International Conference on Pervasive Computing (Pervasive)*. Munich, Germany, pp. 134-151 2005. [15% acceptance rate]
- [C.2] A. LaMarca, Y. Chawathe, S. Consolvo, J. Hightower, I. Smith, J. Scott, **T. Sohn**, J. Howard, J. Hughes, F. Potter, J. Tabert, P. Powledge, G. Borriello, B. Schilit. Place Lab: Device Positioning Using Radio Beacons in the Wild. In Proceedings of *Third International Conference on Pervasive Computing (Pervasive)*. Munich, Germany, pp. 116-133 2005. [15% acceptance rate]
- [C.1] S.J. Waterson, J.I. Hong, **T. Sohn**, J. Heer, T. Matthews, J.A. Landay. What Did They Do? Understanding Clickstreams with the Webquilt Visualization System. In the Proceedings of *Advanced Visual Interfaces: AVI 2002*. Trento, Italy. pp. 94-102, 2002. [30% acceptance rate]

### Conference Posters

- [c.2] J.W. Scott and **T. Sohn**. Client-based Location-Sensing on Mobile Phones. In *6<sup>th</sup> IEEE Workshop on Mobile Computing Systems and Applications (WMCSA) 2004*.
- [c.1] **T. Sohn**, and A.K. Dey. iCAP: An Informal Tool for Interactive Prototyping of Context-Aware Applications. In Extended Abstracts of *Human Factors in Computing Systems: CHI 2003*, pp. 974-975, Apr. 5-10, 2003. [38% acceptance rate]

### Workshop Papers

- [W.6] **T. Sohn**. A Holistic Approach to Address Mobile Information Needs. In *UbiComp Mobile User Experience Workshop 2007*, Innsbruck, Austria.
- [W.5] I. Smith, M. Chen, A. Varshavsky, **T. Sohn**, K. Tang. Algorithms for Detecting Motion of a GSM Mobile Phone. In *ECSCW Workshop on Location-Awareness and Community 2005*, Paris, France
- [W.4] **T. Sohn**. Community-Oriented Programming through Instant Messaging. In Proceedings of the *IEEE Symposium on Visual Languages and Human-Centric Computing*, pp. 294-295. Sept. 26-29, 2003. (Presentation made in special NSF Funded Graduate Student Event on Designing for Diversity in End-User Development Tools)
- [W.3] **T. Sohn**. Building Attractive Location-Aware Applications. Presented at the 2004 Workshop on Location-Aware Computing: Applications, held in conjunction with UbiComp 2004.
- [W.2] **T. Sohn**. Context-Aware Computing Support for the Educationally Disadvantaged. In Proceedings of the *IEEE Symposium on Human Centric Computing Languages and Environments*, pp. 293-294. Oct. 28-31, 2003.

(Presentation made in special NSF Funded Graduate Student Event on Programming for the Educationally Disadvantaged)

- [W.1] A.K. Dey. and **T. Sohn**. *Supporting End User Programming of Context-Aware Applications*. Presented at the CHI 2003 Workshop on Perspectives in End User Development

## Technical Reports

- [T.4] K.A. Li, **T. Sohn**, S. Huang, and W.G. Griswold. PeopleTones: Exploring Peripheral Cues in the Wild Using mobile Phones. CS2007-0888, University of California, San Diego.
- [T.3] **T. Sohn**, K.A. Li, W.G. Griswold, J. Hollan. A Diary Study of Mobile Information Needs. CS2007-0909, University of California, San Diego.
- [T.2] K.A. Li, **T. Sohn**, and W.G. Griswold. Evaluating Location-Based Reminders. CS2005-0826, University of California, San Diego.
- [T.1] **T. Sohn**, and A.K. Dey. Interactive Prototyping of Context-Aware Applications. IRB-TR-03-016, Intel Research Berkeley.

## Professional Service

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- Publications Co-Chair (UbiComp 2008)
- Program Committee Member (LOCA 2007)
- Publicity Co-Chair (UbiComp 2006)
- Student Volunteer (UbiComp 2004, CHI 2005)
- External Reviewer (USENIX 2006, GLOBECOM 2006, UbiComp 2006/2007, Pervasive 2007/2008, CHI 2007)

## Honors and Achievements

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NSF Support to attend special event on 'Designing for Diversity in End-User Development Tools' at Visual Languages and Human-Centric Computing, Rome, Italy, September 2004.

NSF Support to attend special event on 'Programming for the Educationally Disadvantaged' at Human Centric Computing Languages and Environments, Auckland, New Zealand, October 2003.

UCSD Powell Fellowship (\$18,000)

## Non-Academic Interests

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Snowboarding, Running, Photography, Taekwondo (2<sup>nd</sup> degree black belt)

## References

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