

# JOSHUA HAILPERN

Doctor of Philosophy Candidate in Computer Science

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## EDUCATION

- 2006 - Present *University of Illinois at Urbana-Champaign, Urbana, IL*  
Doctor of Philosophy in Computer Science  
Focus: Human-Computer Interaction  
Dissertation Topic: *Developing HCI Technology to Aid in Communication Research for Individuals with Impairments (a Language and Linguistic Perspective)*  
Advisor: Karrie G. Karahalios
- Winter 2008 *University of Illinois at Urbana-Champaign, Urbana, IL*  
Master of Science in Computer Science  
Focus: Human-Computer Interaction  
Master's Thesis: *The Spoken Impact Project: Using Audio & Visual Feedback to Impact Vocalization in Non-Verbal Children with Autistic Spectrum Disorder*  
Advisor: Karrie G. Karahalios
- 2006 *Carnegie Mellon University, Pittsburgh, PA*  
Bachelor of Science in Computer Science with Honors  
Minor in Music Technology  
Senior Thesis: *Distributed Detection of New Virus Threats in Large Scale Networks*  
Advisor: Benoit Morel

## HONORS & AWARDS

- Fall 2011-  
Spring 2012 *Dissertation Completion Fellowship*  
University of Illinois at Urbana-Champaign
- Spring 2011 *Cognitive Science / Artificial Intelligence Award for 2011*  
*Research on ACES Aphasia Emulation Software*  
Beckman Institute, University of Illinois at Urbana-Champaign
- Spring 2011 *Coleman Institute for Cognitive Disabilities Student Design Gold Award*  
*Research on ACES Aphasia Emulation Software*  
Coleman Institute for Cognitive Disabilities, Boulder, CO
- Spring 2011 *Graduate College Conference Travel Grant*  
University of Illinois at Urbana-Champaign
- Summer 2010 *1st place in Google Summer Intern Project Poster Competition*  
*Research on YouPivot Contextual Search System*  
Google, Mountain View, CA
- Spring 2010-  
Fall 2011 *Dennis Weatherstone Fellow*  
*Pre-doctoral Fellowship Presented by Autism Speaks*  
Visualizing Voice (Proposal #6312)  
First Weatherstone fellowship awarded to a computer scientist
- Spring 2009 *Mavis Memorial Fund Scholarship Award*  
Champaign, IL.

- Fall 2007 *Selected to Present Doctoral Consortium Research Contribution at ASSETS Main Conference*  
Sole student selected (1 out of 10)  
ACM SIGACCESS ASSETS Conference 2007  
Tempe, AZ.
- Spring 2007 *3rd place in Siebel Computing Habitat Competition*  
*TEAM STORM: TEAM Support Tool Oriented to Realization of Multiple ideas*  
Urbana-Champaign, IL.
- Spring 2007 *Honorable Mention for NSF Graduate Research Fellowship*
- Fall 2006 *1st place in ACM Graduate Student Research Competition*  
*WISE: a Wizard Interface Supporting Enhanced usability*  
ACM SIGACCESS ASSETS Conference, 2006  
Portland, OR.
- Fall 2006 -  
Spring 2007 *Cultural Computing Fellowship*  
Department of Computer Science at the University of Illinois at Urbana-Champaign  
Urbana-Champaign, IL.
- 2006 *Senior Leadership Award*  
Carnegie Mellon University  
Pittsburgh, PA.
- 2002 *4th place in Computer Science*  
*Ceebler: An HTTP Proxy for Secure, Fine-Grained Access Control of Cookies*  
Intel Science and Engineering Fair (ISEF)  
Louisville, KY.
- 2002 *1st place in Computer Science from U.S. Army*  
*Ceebler: An HTTP Proxy for Secure, Fine-Grained Access Control of Cookies*  
Intel Science and Engineering Fair (ISEF)  
Louisville, KY.
- 2002 *2nd place Overall*  
*Ceebler: An HTTP Proxy for Secure, Fine-Grained Access Control of Cookies*  
Westchester Science and Engineering Fair (WESEF)  
Westchester, NY.
- 2002 *1st place in Computer Science*  
*Ceebler: An HTTP Proxy for Secure, Fine-Grained Access Control of Cookies*  
Westchester Science and Engineering Fair (WESEF)  
Westchester, NY.

## JOURNAL PUBLICATIONS

- 2009 *A<sup>3</sup>: HCI Coding Guideline for Research Using Video Annotation to Assess Behavior of Non-Verbal Subjects with Computer Based Intervention*  
**Hailpern, J.**, Karahalios, K., Halle, J., DeThorne, L. S. and Coletto, M.  
ACM's Transactions on Accessible Computing - Volume 2 , Issue 2 (June 2009).

## FORMALLY REVIEWED CONFERENCE PAPERS

- 2011 *ACES: Aphasia Emulation, Realism, and the Turing Test*  
**Hailpern, J.**, Danilevsky, M., Karahalios, K.  
Proceedings of the ACM SIGACCESS ASSETS 2011 Conference.  
Dundee, Scotland.  
Acceptance Rate 30%

*SCENE: Structural Conversation Evolution Network*

Danilevsky, M., **Hailpern, J.**, Han, J.

Proceedings of the IEEE Conference on Social Networks Analysis and Mining (ASONAM 2011).  
Kaohsiung, Taiwan.

Acceptance Rate 25%

*WINACS: Construction and Analysis of Web-Based Computer Science Information Networks*

Weninger, T., Danilevsky, M., Fumarola, F., **Hailpern, J.**, Han, J., Johnston, J., Kallumadi, Z., Li, Z., McCloskey, D., Sun, Y., TeGrotenhuis, N., Wang, C., Yu, X.

Demonstrations of the ACM SIGMOD/PODS Conference 2011.

Athens, Greece.

Acceptance Rate 40%

*ACES: Promoting Empathy Towards Aphasia Through Language Distortion Emulation Software*

**Hailpern, J.**, Danilevsky, M., Harris, A., Karahalios, K., Dell, G., Hengst, J.

Proceedings of the ACM SIGCHI CHI 2011 Conference.

Vancouver, BC Canada.

Acceptance Rate 26%

*YouPivot: Improving Recall with Contextual Search*

**Hailpern, J.**, Jitkoff, N., Warr, A., Karahalios, K., Sesek, R., Shkrob, N.

Proceedings of the ACM SIGCHI CHI 2011 Conference.

Vancouver, BC Canada.

Acceptance Rate 26%

2010 *The CLOTHO Project: Predicting Application Utility*

**Hailpern, J.**, Jitkoff, N., Subida, J. and Karahalios, K.

Proceedings of the ACM Designing Interactive Systems (DIS) 2010 Conference.

Arhurs, Denmark.

Acceptance Rate 15%

2009 *Talking Points: The differential impact of real-time computer generated audio/visual feedback on speech-like and non-speech-like vocalization of low functioning children with Autistic Spectrum Disorder*

**Hailpern, J.**, Karahalios, K., DeThorne, L. S. and Halle, J.

Proceedings of the ACM SIGACCESS ASSETS 2009 Conference.

Pittsburgh, Pennsylvania.

Acceptance Rate 31%

*DTorial: An interactive tutorial framework for blind users in a Web 2.0 world*

**Hailpern, J.**, Guarino Reid, L., Boardman, R.

Proceedings of INTERACT 2009, the 12th IFIP Conference on Human-Computer Interaction.

Uppsala, Sweden.

Acceptance Rate 29%

*WEB 2.0: Blind to an Accessible New World*

**Hailpern, J.**, Guarino Reid, L., Boardman, R., and Annam, S.

Proceedings of the ACM International World Wide Web (WWW) 2009 Conference.

Madrid, Spain.

Acceptance Rate 12.7%

*Creating a Spoken Impact: encouraging vocalization through audio visual feedback in children with ASD*

**Hailpern, J.**, Karahalios, K., and Halle, J.

Proceedings of the ACM SIGCHI CHI 2009 Conference.

Boston, Massachusetts.

Acceptance Rate 24.5%

2008 *A<sup>3</sup>: A Coding Guideline for HCI+Autism Research using Video Annotation*

**Hailpern, J.**, Karahalios, K., Halle, J., DeThorne, L. S. and Coletto, M.

Proceedings of the ACM SIGACCESS ASSETS 2008 Conference.

Halifax, Canada.

Acceptance Rate 36%

2007 *TEAM STORM: Demonstrating an Interaction Model for Working with Multiple Ideas During Creative Group Work*

**Hailpern, J.**, Hinterbichler, E., Leppert, C., Cook, D. J., and Bailey, B.  
Proceedings of the ACM Conference on Creativity & Cognition, June 2007.  
Washington, D.C.  
Acceptance Rate 23%

## PATENTS

2010 *Filing Still Under Non-Disclosure Agreement with Google*  
Joshua Hailpern and Nicholas Jitkoff

2008 *A System and Method of Enhanced Virtual Reality*  
Joshua Hailpern and Peter Malkin  
United States Patent Filing 20080030429. Published February 2, 2008. Filed August 8, 2006.

## EXTERNAL INVITED TALKS

2011 *How to Impact 90% of the Population by Designing for 10%*  
dub HCI Research Seminar Series, University of Washington Seattle  
Seattle, WA.

*How to Impact 90% of the Population by Designing for 10%*  
HCI Research Lunch Seminar, Stanford University  
Palo Alto, CA.

*Finding your Digital Car Keys:  
Leveraging Human Memory & Contextual Cues to Improve Personal Search*  
Accenture Technology Labs  
Chicago, IL (webcast to San Jose, CA).

2010 *Just what do you think you're doing, Dave?:  
Predicting important applications for context sensitive systems*  
IBM Research - Almaden  
San Jose, CA.

*Importance: Quantitatively Predicting a Qualitative Feeling*  
PARC (Palo Alto Research Center)  
Palo Alto, CA.

2008 *VCode & VData: Illustrating a new Framework for Supporting the Video Annotation Workflow*  
Google Tech Talks  
Mountain View, CA.

## OTHER PUBLICATIONS

2010 *VocSyl: Visualizing Syllable Production for Children with ASD and Speech Delays*  
**Hailpern, J.**, Karahalios, K., DeThorne, L., Halle, J.  
Extended Abstracts of ACM's SIG ACCESS Conference  
Orlando, FL.

*Visualizing Multi-Syllabic Speech with Computers for Language Therapy*  
**Hailpern, J.**, Karahalios, K., DeThorne, L., Halle, J., Lohrens, J.  
International Meeting for Autism Research (IMFAR)  
Philadelphia, PA.

2008 *Computerized Feedback to Facilitate Vocalizations in Nonverbal Children with Autism*  
DeThorne, L.S., Karahalios, K., Halle, J., **Hailpern, J.**, & Coletto, M.  
2008 American Speech-Language-Hearing Association Annual Convention  
Chicago, IL.

*Visual Feedback to Facilitate Language in a Child with Autism*  
Coletto, M., DeThorne, L.S., Halle, J., Karahalios, K., and **Hailpern, J.**  
2008 American Speech-Language-Hearing Association Annual Convention  
Chicago, IL.

*VCode and VData: Illustrating a new Framework for Supporting the Video Annotation Workflow*  
Hagedorn, J., **Hailpern, J.**, and Karahalios, K.  
Poster Paper in ACM 2008 Conference on Advanced Visual Interfaces  
Napoli, Italy.

2007 *Encouraging Speech and Vocalization in Children with Autistic Spectrum Disorder*  
**Hailpern, J.**  
ACM SIGACCESS Doctoral Consortium/ACM SIGACCESS Winter 2007 Newsletter  
Tempe, AZ.

2006 *WISE: a Wizard Interface Supporting Enhanced usability*  
**Hailpern, J.**  
Proceedings of ACM SIG ASSETS 2006 Conference  
Portland, OR.

## TECHNICAL REPORTS

2006 *WISE: a Wizard Interface Supporting Enhanced Usability*  
**Hailpern, J.**  
IBM Research Report RC24015, July 2006

2001 *An Analysis of the Prevalence of Cookies on the World Wide Web*  
**Hailpern, J.**, Palmer, C.  
IBM Research Report RC22264, 2001

## RELATED EXPERIENCE

Summer 2010 *Summer Internship at Google*  
*Nicholas Jitkoff, Google; Mountain View, CA.*  
Created and implemented YouPivot, a novel personal search system, based on the literature in human memory, that leverages contextual cues.  
1 Publication + 1 Patent (currently under NDA)

Summer 2008 *Summer Internship at Google*  
*Dr. Loretta Guarino Reid & Dr. Richard Boardman, Google; Mountain View, CA.*  
Created Dtorial, an interactive tutorial system for web application usage for visually impaired users.  
Usability design, implementation and testing.  
2 Publications

Summer - Fall 2007 *Independent Study on "Speech and Vocalization in Children with Autistic Spectrum Disorder" Project*  
*Prof. Karrie G. Karahalios, University of Illinois at Urbana-Champaign; Champaign, IL.*  
Designed and built visual and auditory feedback tools to encourage speech and vocalization in low functioning non-verbal children with Autistic Spectrum Disorder. Designed, organized and conducted studies to test the preferences and effect of the tool on target population.  
10 Publications + MS Thesis

- Fall 2006 *Independent Study on "TEAM STORM" Project*  
 Prof. Brian Bailey, University of Illinois at Urbana-Champaign; Champaign, IL.  
 Conducted observational studies, designed and built a prototype, and performed user tests on TEAM STORM (TEAM Support Tool Oriented to Realization of Multiple-ideas), a system to support creative idea generation for early stage design teams.  
 1 Publication
- Summer 2006 *Summer Internship at IBM Research*  
 Dr. Vicki Hanson, IBM Thomas J. Watson Research Center; Hawthorne, NY.  
 Designed, implemented, and tested features of IBM's Accessibility works for older adults browsing the web. Also conducted user testing of my WISE software system with older adults.  
 2 Publications
- 2005-2006 *Senior Thesis on "Distributed Detection of New Virus Threats in Large Scale Networks"*  
 Prof. Benoit Morel, Carnegie Mellon University; Pittsburgh PA.  
 Investigated the feasibility and practicality of a distributed virus detection network to recognize new computer viruses faster than current methods, basing our model on work by John von Neumann.
- Fall 2005 *HCI Research Project on "WISE: Wizard Interface Supporting Enhanced usability"*  
 Prof. Jason Hong, Carnegie Mellon University; Pittsburgh, PA.  
 As part of HCI 431, researched and designed a new graphical interface for older adults, based on gerontological literature, which addresses many age-related challenges.  
 1 Publication
- Summer 2005 *Summer Internship in Computer Music*  
 Prof. Roger Dannenberg, Carnegie Mellon University; Pittsburgh, PA.  
 Designed and implemented a programming interface to a music visualization package. Also converted a DSP program from Matlab to C and debugged Matlab sound analysis code.
- Summer 2004 *Summer Internship at IBM Software Group's Pittsburgh Lab*  
 Jeff Kaminski, IBM Software Group; Pittsburgh, PA.  
 Designed and implemented a reservation database in Lotus Notes, a script to get status and perform updates on networked systems, as well as perform machine maintenance.
- Summer 2003 *Summer Internship at IBM Research*  
 Dr. Herb Lee, IBM Thomas J. Watson Research Center; Yorktown Heights, NY.  
 Designed/developed authentication/logging programs for IBM Tivoli's Internet measurement software.
- 1999 - 2002 *Supervised Computer Research Project*  
 Dr. Charles Palmer, IBM T. J. Watson Research Center; Hawthorne, NY.  
 Conceived and developed prototype software to protect, encrypt and manage Internet cookies.  
 1 Publication

## PROFESSIONAL ACTIVITY

- 2011 *Graphic Design Chair*  
 ACM SIGACCESS ASSETS 2011 Organizing Committee
- 2011 *University of Illinois Department of Computer Science Graduate Council*  
 Member
- 2010 *Department of Computer Science Graduate Admissions Committee (for Fall 2011)*  
 Graduate Student Member, University of Illinois at Urbana-Champaign  
 Urbana, IL
- 2010 *Public Relations Chair*  
 ACM SIGACCESS ASSETS 2010 Organizing Committee
- 2009 - 2011 *Graduate-Undergraduate Mentor*  
 Women in Computer Science, University of Illinois Chapter  
 Urbana, IL

- 2009 *Local Arrangements Chair*  
ACM SIGACCESS ASSETS 2009 Organizing Committee
- Fall 2008 *Participated in the Invitation-Only ACM Digital Library Workshop*  
*Sole student representative at two-day workshop focused on design and outlining future direction of the ACM Digital Library*  
ACM Headquarters  
New York, NY
- 2008 - Present *ACM SIGCHI - Association for Computing Machinery*  
*Special Interest Group on Computer-Human Interaction*  
Member, Student
- 2008 - Present *ACM SIGACCESS - Association for Computing Machinery*  
*Special Interest Group on Accessible Computing*  
Member, Student
- Spring 2007 *Student Volunteer*  
ACM SIG CHI Conference 2007  
San Jose, CA
- 2006 - Present *ACM - Association for Computing Machinery*  
Member, Student

## TEACHING & GUEST LECTURES

- Spring 2011 *Guest Lecture on Universal Design for Human Computer Interaction Lab: PSYC429*  
*Prof. Wai-Tat Fu, University of Illinois at Urbana-Champaign; Urbana, IL.*
- Spring 2011 *Guest Lecture on Universal Design for Entrepreneurial IT Design: LIS490*  
*Suh, S. and Floyd, I., University of Illinois at Urbana-Champaign; Urbana, IL.*
- Fall 2009 *Guest Lecture on Assistive Technology for Entrepreneurial IT Design: LIS490*  
*Prof. Michael Twidale, University of Illinois at Urbana-Champaign; Urbana, IL.*
- Fall 2009 *Teaching Assistant for Introduction to Programming: INFO103*  
*Prof. Eric Shaffer, University of Illinois at Urbana-Champaign; Urbana, IL.*
- Spring 2006 *Teaching Assistant for Computer Networks: 15-441*  
*Profs. Peter Steenkiste and David Eckhardt, Carnegie Mellon University; Pittsburgh, PA.*
- Summer 2005 *Lead Teaching Assistant for Fundamental Data Structures and Algorithms: 15-211*  
*Prof. Victor Adamchik, Carnegie Mellon University; Pittsburgh, PA.*
- Fall 2003 *Consultant for Intermediate/Advanced Programming*  
*Prof. Rich Pattis, Carnegie Mellon University; Pittsburgh PA.*

## MENTORED STUDENTS

- 2011-Present *Andrew Harris (MS in CS)*  
VocSyl & Touch Based Interactions for Children with Autism
- 2011-Present *Zhongnan "Eddie" Du (BS in CS)*  
VCode & VData
- 2011-Present *Reed La Botz (BS in CS)*  
VocSyl & YouPivot - TimeMarks
- 2011 - Present *Abraham Fine (BS in CS)*  
YouPivot - Server Back End

- 2011 - Present *Maurice Lam (BS in CS)*  
YouPivot - Interactions Front End
- 2010 - Present *Brianna Birman (BS in CS)*  
VocSyl and Touch-based Interactions
- Spring 2010 *Mo Kudeki (BS in CS)*  
The VocSyl Project
- 2009 - 2010 *Joseph Subida (BS in CS)*  
The Clotho Project
- 2007 - 2008 *Joey Hagedorn (BS in CS)*  
VCode & VData

## PUBLICATION REVIEWER

- 2011 *Ubicomp*  
Conference
- Interact*  
Conference
- International Joint Conferences on Artificial Intelligence*  
Conference
- 2007 - 2011 *CHI*  
Conference
- 2008 - 2011 *Transactions on Accessible Computing*  
Journal
- 2010-2011 *ASSETS*  
Conference
- 2010 *Intelligent User Interfaces*  
Conference
- 2009 - 2010 *CSCW*  
Conference
- 2009 *Creativity and Cognition*  
Conference
- 2009 *ACM Multimedia*  
Conference

## PRESS

- 2011 *A Prototype of Pivot Searching*  
Charles Q. Choi  
IEEE Spectrum, October 2011.
- ACM launches new Digital Library*  
Gary Anthes  
Communications of the ACM, Volume 54 Issue 2, February 2011.
- 2009 *Talking in color: imaging helps social skills*  
David Lawsky  
Reuters News Service and Syndicated Outlets, April 1, 2009.

## COMPUTER SKILLS

### *Applications*

MS Office, Adobe Creative Suite (up to CS5), Processing, ProTools, Reason, Finale, Emacs, Eclipse, Xcode, iLife, iWork, Final Cut Studio.

### *Languages*

Java, Java-Script, SML, C, C++, Perl, HTML, Assembly, Matlab, Objective-C (including Cocoa, Apple-script and Carbon), OpenGL, Python, PHP, CSS.

### *Operating Systems*

Windows (through 7), OSX (through Lion), Linux, Unix, Solaris, Chrome OS, iOS.

## SELECTED COURSE TOPICS

### *Graduate: University of Illinois at Urbana-Champaign*

Computer Supported Cooperative Work, IT Design, Computer Graphics, Human-Computer Interaction, Graphic Design

### *Undergraduate: Carnegie Mellon University*

*Computer Science & Technology* - Programming Languages, Data Structures, Algorithms, Systems, Networks, Virtual Reality, User Interface Architecture, Computer Theory, Information Warfare, Robotics, Electronic & Computer Music

*Graphic Design* - Visual Interface Design, Communication Design

*Music* - Music Theory, Recording Techniques, Physics of Music

## OTHER SKILLS

### *Graphic Design*

Print, Web, Logo, Poster, Brochure, Shirts and other Non-Traditional Media

### *Music*

Guitar, Piano, Composition, Recording, Editing and Mastering

### *Video*

Editing and Effects

## OTHER EXPERIENCE

2007 - 2009 *Member Governing Board*  
*The Hillel Foundation, Center for Jewish Life; Champaign, IL.*

2003 - Present *Web, Logo and PR Design*  
*The Hillel Foundation, Center for Jewish Life; Champaign, IL.*  
*The Hillel Foundation, Jewish University Center of Pittsburgh; Pittsburgh, PA.*

## WORKSHOP PUBLICATIONS

2008 *Encouraging Speech and Vocalization in Children with Autistic Spectrum Disorder*  
Joshua Hailpern, Karrie Karahalios, Laura DeThorne and James Halle  
Workshop on Technology in Mental Health at ACM SIGCHI CHI 2008 Conference  
Florence, Italy.