

NICHOLAS CHEN

Ph.D. Candidate
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Areas of Interest

My research in Human-Computer Interaction is focused on supporting reading activities on electronic devices. To accomplish this, I have developed novel multi-screen reading device hardware, more efficient interaction techniques between reading devices and PCs, and new reading software interfaces. These approaches are motivated by my underlying belief that hardware and software need to be tightly integrated, that new devices need to integrate with existing tools and processes, and that improved support for ecosystems of devices offers a rich source of new HCI possibilities.

Education

8/04 – Now **University of Maryland at College Park**, College Park, Maryland
Ph.D. Candidate, Degree expected Spring 2012

8/99 – 12/03 **University of California at Berkeley**, Berkeley, California
B.S. Electrical Engineering/Computer Science (EECS), with Honors
B.A. History, Distinction in General Scholarship (Cum laude)

Employment

8/04 – now **University of Maryland Human Computer Interaction Laboratory**,
College Park, MD
Graduate Student Researcher
Research Areas: Electronic Reading Devices, Document Navigation Techniques,
and High-performance Pen Interfaces.

- Electronics and hardware device design, debugging and failure analysis.
- Embedded systems programming.
- Network/Web/Cloud application development (for reading device communication infrastructure).
- Long-term longitudinal studies (1-3 months) of reading device use in academic environments.
- Designed controlled lab studies using combinations of video capture, optical tracking (Optitrack), and eye-tracking technologies.

2/09 – 8/09 **Ricoh Innovations California Research Center**,
Menlo Park, CA
Research Intern

- Designed electronic circuits for power system, communications system and e-paper display interface for a prototype electronic reading device.
- Developed Linux device drivers for prototype device.
- Gained significant insights into product development, inventory acquisition and production techniques for consumer electronics devices.

6/08 – 9/08 **Microsoft Research Cambridge**,
Cambridge, England

Research Intern with Abigail Sellen

- Comprehensive review of work-related reading activities
- Prototyped interactions for rapid information transfer across electronic reading surfaces.

6/01 – 5/04 **Group for User Interface Research,**
Berkeley, CA

Undergraduate Student Researcher

- Designed and developed a P2P infrastructure for emergency response applications.
- Performed embedded systems programming and development for handheld platforms.

7/01 – 12/02 **The Daily Californian Newspaper**
Berkeley, CA

Website Administrator

- Redesigned Daily Californian Website.
- Maintained and extended backend administration and database features.

Publications

Journal Papers

Chen, N., Guimbretiere, F., and Sellen, A. Designing a Multi-slate Reading Environment to Support Active Reading Activities. *ACM Transactions on Computer-Human Interaction*. In submission.

Chen, N., Guimbretiere, F., and Sellen, A. Comparison of Tablets, Windows, and Paper Reading Surfaces in Support of Active Reading. *ACM Transactions on Computer-Human Interaction*. Under revision.

Chen, N. and Guimbretiere, F. Relative Role of Merging and Two handed operation on command selection speed. *International Journal of Human-Computer Studies* 66(10), 2008. pp. 729-740

Chen, N., Guimbretiere, F., Sun, L., Czerwinski, M., Pangaro, G. and Bathiche, S. Hardware support for navigating large digital documents. *International Journal of Human-Computer Interaction*. 25(3), 2009. pp. 199-219

Major Refereed Conference Papers

Chen, N., Guimbretiere, F., Dixon, M., Lewis, C. and Agrawala, M. Navigation techniques for dual display e-book readers. *Proceedings of CHI 2008*.

Dixon, M., Guimbretiere, F., Chen, N. *Maximizing Efficiency in Crossing-Based Dialog Boxes*. *Proceedings of CHI 2008*.

Hinckley, K., Guimbretiere, F., Apitz, G., Chen, N., and Agrawala, M. Phrasing techniques for multistroke selection gestures. *Proceedings of GI 2006*, pp. 147-154

Jiang, X., Chen, N.Y., Hong, J.I, Wang, K., Takayama, L., and Landay, J. A. Siren: Context-aware computing for firefighting. *Proceedings of PERVASIVE 2004*, pp. 87-105

Other Refereed Materials

Chen, N., Guimbretiere, F., Lewis, C., and Agrawala, M. Enhancing document navigation tasks with a dual-display electronic reader. *Adjunct proceedings of UIST 2007*

Patents and Patent Applications

Hinckley, K., Guimbretiere, F., Aplitz, G., Chen, N., Agrawala, M. and Sarin, R.. *Phrasing Extensions and Multiple Modes in One Spring-loaded Controls*. United States Patent Application No.: 20060267967

Invited Talks

Design and Implementation of a Multi-Tablet Environment For Knowledge Work

11 June 2010 Ricoh Innovations, Inc. California Research Center, Menlo Park, CA
9 June 2010 Lab 126, Inc., Cupertino, CA
8 June 2010 Microsoft Research, Seattle, WA

Prototyping a Dual-Display E-Reader in the Literature Classroom

30 March 2010 Maryland Institute for Technology in the Humanities (MITH) Digital Dialogues, College Park, MD (in conjunction with Dr. Kari Kraus)

Awards and Honors

2009 Google Ph.D. Fellowship
2004 NSF Graduate Research Fellowship Competition, Honorable Mention
2003 UC Berkeley EECS Honors Degree Program

Professional Service Activities

Student Contest Chair

ACM Symposium on User Interface Software and Technology (UIST), 2010-2011

Reviewer

ACM Human Factors in Computing Systems (CHI), 2008-2010
ACM Symposium on User Interface Software and Technology (UIST), 2010-2011
International Journal of Human-Computer Interaction (IJHCI), 2009

President

Eta Kappa Nu, National Electrical and Computer Engineering Honor Society, Berkeley Chapter, 2003

Press Coverage

14 May 2011 Microsoft Research-backed e-reader prototype can't keep its text to itself, *Engadget*
18 April 2009 Am Bildschirm blättern, *Westdeutsche Allgemeine Zeitung*
26 June 2008 Dual-display e-book concept mimicks reading, makes complete sense, *Engadget*
25 June 2008 Researchers Demo Flippable-Page E-book Reader, *Slashdot*
25 June 2008 Dual-display e-book reader lets you flip pages naturally, *New Scientist Blog*
14 April 2008 CHI Favorite: E-Books — Two Screens or One?, *Adaptive Path Blog*

Technical Skills

Programming Languages, Frameworks, and Toolkits

Actionscript, AJAX, ASP, C, C++, C#, Cocoa, CSS, GTK+, Javascript, Java, Google App Engine, Lisp, .NET, Objective-C, OpenCV, Perl, PHP, Python, REST, Qt, Sockets (Windows and UNIX), SQL, WPF, XML/XHTML

Microelectronics

Electronic schematic capture, PCB layout and design, microcontroller programming

Mechanical Prototyping

Laser cutter and 3D printer fabrication