

Richard C. Davis

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Education

University of California, Berkeley, CA, USA

- PhD in Computer Science, December 2008
Dissertation: *K-Sketch: A “Kinetic” Sketch Pad for Novice Animators*
Advisors: James A. Landay and John F. Canny

Massachusetts Institute of Technology, Cambridge, MA, USA

- MEng in Electrical Engineering and Computer Science, June 1995
Thesis: *Functional Testing of ASICs (Application Specific Integrated Circuits) Designed with Hardware Description Languages*
- BS in Computer Science and Engineering with a minor in Theater Arts, June 1995

Employment

Act8 Design Pte. Ltd., Singapore

Founder and Consultant – June 2016 to present

- Provide interaction design and user experience design consulting services.

Singapore Management University, Singapore

Assistant Professor of Information Systems – January 2009 to June 2016

- Planned and executed HCI research projects
- Designed and taught courses in HCI and Software Engineering

Microsoft Corporation, Redmond, WA, USA

Research Intern – June 2004 to September 2004

- Designed and implemented “SketchWizard,” which allows designers with no programming experience to create Wizard of Oz prototypes of pen-based applications.

The MathWorks, Inc., Natick, MA, USA

Design Automation UI Engineer – September 2001 to October 2002

- Prototyped new signal viewing interfaces for *Simulink*, a dynamic systems simulation tool. Modified the simulation engine’s core to support this new interface. Assisted the Matlab team in porting Simulink to MacOS X.

Artel Software, Inc., Boston, MA, USA

Software Engineer – January 2001 to September 2001

- Added international language support and exporters for AVI and Flash file formats to the *BorisFX* family of products. Worked on cross-platform user interface issues and integration issues with external hosts such as Discreet Edit.

Virtual Ink Corporation, Boston, MA, USA*Business Development Manager* – January 2000 to October 2000

- Monitored approximately 200 e-Learning and e-Conferencing companies, developed partnership strategies for 40 companies, and created a new e-commerce sales channel with two companies.
- Wrote proposals for products needed to forge partnerships.

Software Architect – October 1998 to January 2000

- Developed interfaces and graphics algorithms for the *mimio* note-taking software and *mimioMouse* projector calibration software.
- Led interface design and user testing teams for the *mimio*, Handwriting Recognition, and *boardCast* products.
- Led a research team that redesigned the *mimio* software interface to allow editing while preserving meeting capture capabilities.

AT&T Labs Research, Florham Park, NJ, USA*Research Intern* – June 1998 to August 1998

- Designed and implemented an audio stream downloading and playback plugin for Netscape as part of the “Jotmail” system. The plugin noted playback position while annotations were being typed or drawn and used these annotations to index the audio stream.

FX Palo Alto Laboratory, Palo Alto, CA, USA*Research Intern* – June 1997 to August 1997

- Led the design and implementation of “NotePals,” a groupware system that merged handwritten notes and increased awareness of group thoughts and experiences.

Intel Corporation, Santa Clara, CA, USA*Component Design Engineer* – August 1995 to August 1996

- Performed quality studies of electromigration checking tools and developed new tools that sped up the checking process by improving the user interface.

Teaching Experience**Full Courses***Singapore Management University, Singapore*

Course	Lvl	Role	Terms
IS 306: Interaction Design & Prototyping (formerly Usability Engineering)	UG	Course Coordinator	2015-16 Term 1 (152 students)
			2014-15 Term 2 (50 students)
			2014-15 Term 1 (85 students)
			2013-14 Term 2 (127 students)
			2012-13 Term 2 (36 students)
			2011-12 Term 2 (23 students)
			2011-12 Term 1 (44 students)
IS 480: Final Year Project	UG	Project Supervisor	2013-14 Term 1 (21 students)
			2012-13 Term 2 (22 students)

			2012-13 Term 1 (17 students)
			2011-12 Term 2 (10 students)
IS 203: Software Engineering	UG	Lecturer	2010-11 Term 1 (71 students)
			2009-10 Term 2 (105 students)
IS 707: Human-Computer Interaction	G	Lecturer	2010-11 Term 2 (6 students)
IS 706: Engineering Software Systems	G	Lecturer	2009-10 Term 2 (4 students)
IS 303: Architectural Analysis	UG	Instructor	2008-09 Term 2 (84 students)

University of Washington, Seattle, WA, USA

CSE 303: Concepts and Tools for Software Development

Lecturer

Topics: using Unix shells, scripting, compilers (C/C++), debuggers, profilers

- Autumn 2006
 - Two teaching assistants, 55 students in two sections
 - Introduced Subversion version control and upgraded treatment of C++
 - <http://www.cs.washington.edu/education/courses/cse303/06au/>

CSE 490jl: User Interface Design, Prototyping, and Evaluation

Teaching Associate (assisting James Landay)

- Autumn 2004
 - Ran weekly discussion section, purchased and configured course software, graded, guest lectured, mentored project teams

University of California, Berkeley, CA, USA

CS 184: Computer Graphics

Graduate Student Instructor (assisting Professors David Forsyth and James O'Brien)

- Spring 2003
 - Ran weekly discussion section, prepared programming assignments, graded, mentored project teams

Guest Lectures and Panels

IS 708: Mobile and Distributed Systems

Lectures on User Interface Design, Prototyping, and Evaluation

Singapore Management University, Singapore – March 24 & 31, September 16 & 23, 2014

Academy of Play Holiday Camp

Making Fun and Interesting Animation in 2D

AEC College, Singapore – March 19, 2014

CS 4249: Phenomena and Theories of Human Computer Interaction

Panel on HCI Career Development

National University of Singapore, Singapore – October 29, 2013

GEK 1501: Information Technology and Us

K-Sketch: Kinetic Sketching for Novices

National University of Singapore, Singapore – August 25, 2011 & September 30, 2010

CS 4249: Design of Advanced User Interfaces

K-Sketch: A “Kinetic” Sketch Pad for Novice Animators

National University of Singapore, Singapore – October 19, 2009

IMT 540a: Design Methods for Interaction and Systems

K-Sketch: A “Kinetic” Sketch Pad for Novice Animators

University of Washington, Seattle, WA – October 15, 2008

ENGR 100: Introduction to Engineering Design

The Software Industry: A Personal Whirlwind Tour

University of Washington, Seattle, WA – April 16, 2004

CS 160: User Interface Design, Prototyping, and Evaluation

Usability in the Trenches

University of California, Berkeley, CA – October 29, 2003 & November 4, 2002

Honors

- Honorable Mention for Best Paper Award, for SandCanvas: A Multi-touch Art Medium Inspired by Sand Animation, ACM SIGCHI 2011 Conference Papers, May 2011.
- Best Design, for *SandCanvas: New Expressions in Sand Animation*, ACM SIGCHI 2011 Conference Video Program, May 2011.
- Graduate Assistance in Areas of National Need (GAANN) Fellowship, 1996-1997.
- Honorable Mention for National Science Foundation Graduate Fellowship, 1995.

Publications

Journal Articles

James A. Landay and Richard C. Davis. Making sharing pervasive: Ubiquitous computing for shared note taking. *IBM Systems Journal*, vol. 38, no. 4, 1999, pp. 531-550.

Conference Papers

Camellia Zakaria, Richard Davis, and Zachary Walker. Seeking Independent Management of Problem Behavior: A Proof-of-Concept Study with Children and their Teachers.

Proceedings of the 15th ACM SIGCHI Interaction Design and Children Conference (IDC 2016), Manchester, UK, June 21-24, 2016, pp 196-205.

Jason Chen Zhao, Richard C. Davis, Pin Sym Foong, and Shengdong Zhao. CoFaçade: A Customizable Assistive Approach for Elders and Their Helpers. *Proceedings of CHI 2015*, Seoul, South Korea, April 18-23, 2015, pp 1583-1592.

Richard C. Davis, Kevin Steppe, Mengyuan Guan, Jing Ting Khoo, Rui Zhang, and Quee Boon Koh. Flexible Grouping and Multiple Centers for Preserving Simplicity and Flexibility

in Animation Sketches. *Proceedings of the 11th Asia Pacific Conference on Computer Human Interaction (APCHI 2013)*, Bangalore, India, September 24-27, 2013, pp 73-82.

Rubaiat Habib Kazi, Takeo Igarashi, Shengdong Zhao, and Richard C. Davis. Vignette: Interactive Texture Design and Manipulation with Freeform Gestures for Pen-and-Ink Illustration. *Proceedings of CHI 2012*, Austin, TX, USA, May 5-10, 2012, pp 1727-1736.

Rubaiat Habib Kazi, Kien-Chuan Chua, Shengdong Zhao, Richard C. Davis, and Kok-Lim Low. SandCanvas: A Multi-touch Art Medium Inspired by Sand Animation. *Proceedings of CHI 2011*, Vancouver, BC, Canada, May 7-12, 2011, pp. 1283-1292.

Richard C. Davis, Brien Colwell, and James A. Landay. K-Sketch: a “kinetic” sketch pad for novice animators. *Proceedings of CHI 2008*, Florence, Italy, April 5-10, 2008, pp. 413-422.

Richard C. Davis, T. Scott Saponas, Michael Shilman, and James A. Landay. SketchWizard: Wizard of oz prototyping of pen-based user interfaces. *Proceedings of UIST 2007*, Newport, RI, October 7-10, 2007, pp. 119-128.

Richard C. Davis and James A. Landay. Informal animation sketching: Requirements and design. *Proceedings of AAAI 2004 Fall Symposium on Making Pen-Based Interaction Intelligent and Natural*. Arlington, VA, October, 2004, pp. 42-48.

Daniel L. Odell, Richard C. Davis, Andrew Smith, and Paul K. Wright. Toolglasses, marking menus, and hotkeys: a comparison of one and two-handed command selection techniques. *Proceedings of Graphics Interface 2004*, London, Ontario, Canada, May, 2004, pp. 17-24.

Steve Whittaker, Richard Davis, Julia Hirschberg, Urs Muller. Jotmail: A voicemail interface that enables you to see what was said. *Proceedings of CHI 2000*, The Hague, Netherlands, April 2000, pp. 89-96.

Richard C. Davis, James A. Landay, Victor Chen, Jonathan Huang, Rebecca B. Lee, Francis Li, James Lin, Charles B. Morrey III, Ben Schleimer, Morgan N. Price, and Bill N. Schilit. NotePals: Lightweight note sharing by the group, for the group. *Proceedings of CHI '99*, Pittsburgh, PA, May 1999, pp. 338-345.

Videos and Demos

Camellia Zakaria and Richard C. Davis. Wearable Application to Manage Problem Behavior in Children with Neurodevelopmental Disorders. *Proceedings of the Fourteenth International Conference on Mobile Systems, Applications and Services (MobiSys 2016 Companion)*, Singapore, June 2016, p. 127.

Richard C. Davis and Camellia Zakaria. K-Sketch: Digital Storytelling with Animation Sketches. *Interactive Storytelling: Proceedings of ICIDS, Singapore, November 3-6, 2014: Lecture Notes in Computer Science*. vol. 8832, 2014, Springer, pp. 242-245.

Rubaiat Habib Kazi, Takeo Igarashi, Shengdong Zhao, Richard C. Davis, and Kenshi Takayama. Vignette: a style preserving sketching tool for pen-and-ink illustration with texture synthesis. *Proceedings of ACM SIGGRAPH 2012*, Los Angeles, CA, USA, August 2012. Article 29.

Rubaiat Habib Kazi, Takeo Igarashi, Shengdong Zhao, Richard C. Davis, and Toni-Jan Keith Monserrat. Anyone can sketch vignettes! *CHI 2012 Extended Abstracts (Video Showcase)*, Austin, TX, USA, May 2012, p. 1461.

Rubaiat Habib Kazi, Kien-Chuan Chua, Shengdong Zhao, Richard C. Davis, and Kok-Lim Low. SandCanvas: New Expressions in Sand Animation. *CHI 2011 Extended Abstracts (Video Showcase)*, Vancouver, BC, Canada, May 2011, p. 483. (Best Design Award Winner)

Richard C. Davis, James Lin, Jason A. Brotherton, James A. Landay, Morgan N. Price and Bill N. Schilit. A framework for sharing handwritten notes. *Proceedings of UIST '98*, San Francisco, CA, USA, November 1998, pp. 119-120.

Workshops and Workshop Papers (Published)

Richard C. Davis and Aaron Adler. Sketch: Pen and Touch Recognition. *IUI Companion '14*. Haifa, Israel, February, 2014, pp 51-52.

Richard C. Davis. Prototyping Video Games with Animation. *Games and Innovation Research Seminar 2011 Working Papers*, University of Tampere, Finland, May, 2011, pp 49-52.

Richard C. Davis and James A. Landay. Forms of expression for designing visual languages for animation. *Graduate Student Consortium, IEEE Symposium on Visual Languages and Human-Centric Computing*, Dallas, Texas, September 2005, pp. 327-328.

Richard C. Davis and James A. Landay. A visual language for animating sketches. *Graduate Student Consortium, IEEE Symposium on Visual Languages and Human-Centric Computing*, Rome, Italy, September 2004, pp. 273-274.

Workshop Papers (Unpublished)

Vu Tran, Kenny T.W. Choo, Youngki Lee, Richard Davis and Archan Misra. MAGI: Enabling Multi-Device Gestural Applications. *IEEE PerCom Workshop on Sensing Systems and Applications using Wrist based Smart Devices (WristSense2016)*, Sydney, Australia, March 2016.

Kenny T.W. Choo, Richard C. Davis and Quentin Roy. Enabling Multi-Device Interaction on the Go in the MAGI Project. *CHI 2016 Workshop on Cross-Surface: Challenges and Opportunities for 'Bring Your Own Device' in the Wild*, San Jose, CA, USA, May 2016.

Richard C. Davis. Using Optimization to Design Fast, Simple, and Versatile User Interfaces. *CHI 2015 Workshop on Principles, Techniques and Perspectives on Optimization and HCI*, Seoul, South Korea, April 2015.

Richard C. Davis and Kenny T.W. Choo. *PlaySketch: Turning Animation Sketches Into Game Logic*. *IUI 2014 Workshop on Sketch: Pen and Touch Recognition*, Haifa, Israel, February 2014.

Richard C. Davis. Playing with Recognizers: A Call for an Extensible Editor. *CHI 2010 Workshop on Designing Sketch Recognition Interfaces*, Atlanta, GA, April 2010.

James A. Landay, Yang Li, and Richard Davis. Activity-based pen computing. 2007 *Invited Workshop on Pen-Centric Computing Research*, Brown University, March, 2007.

Richard C. Davis. Informal animation sketching with K-Sketch. *Doctoral Consortium, UIST 2005*, Seattle, WA, October, 2005.

James A. Landay, Richard C. Davis, Victor Chen, Jonathan Huang, Rebecca B. Lee, Francis Li, James Lin, Charles B. Morrey III, and Ben Schleimer. NotePals: Sharing and synchronizing handwritten notes with multimedia documents. *Handheld CSCW Workshop, CSCW '98*, Seattle, WA, Nov. 1998.

Technical Reports

Richard C. Davis. K-Sketch: A Kinetic Sketch Pad for Novice Animators, Unpublished doctoral dissertation, Technical Report UCB/EECS-2008-171, EECS Computer Science Division, University of California, Berkeley, CA, December 2008.

Brien Colwell, Richard C. Davis, and James A. Landay. A study of early stage game design and prototyping. Technical report UW-CSE-08-10-03, Computer Science and Engineering Department, University of Washington, Seattle, WA, October 2008.

Richard C. Davis and James A. Landay. An exploration of lightweight meeting capture. Technical report UCB/CSD-98-1015, EECS Computer Science Division, University of California, Berkeley, CA, May 1998.

Richard C. Davis, Jason A. Brotherton, James A. Landay, Morgan N. Price, and Bill N. Schilit. NotePals: Lightweight note taking by the group, for the group. Technical Report UCB//CSD-98-997, CS Division, EECS Department, UC Berkeley, Berkeley, CA. February 1998.

Jason A. Brotherton, Richard C. Davis, James A. Landay, Morgan N. Price, and Bill N. Schilit. Sharing free-form ink through the web. Technical Report FXPAL-TR-97-022, FX Palo Alto Laboratory, September 1997.

Richard C. Davis. *Functional Testing of ASICs Designed with Hardware Description Languages*. Master's Thesis. Massachusetts Institute of Technology, Electrical Engineering and Computer Science Department. May 1995.

George A. Boughton, Greg Papadopoulos, Bob Greiner, Satoshi Asari, Steve Chamberlin, Jack Costanza, Richard Davis, Thomas Deng, Tom Durgavich, Doug Faust, Eric Heit, Tom Klemas, Jimmy Kwon, Wing Chi Leung, Elizabeth Ogston, Gowri Rao, and Ralph Tiberio. Arctic user's manual. CSG Memo 353, Computation Structures Group, MIT Laboratory for Computer Science, MIT, Cambridge, MA, February. 1994.

Patents

Yonald Chery, Richard C. Davis, Andrew Kelley, III, William P. Moyne, Matthew D. Verminski. *Detector Assembly for Use in a Transcription System*. United States Patent 6,232,962, Assigned to Virtual Ink Corporation, June 7, 2000.

Research Grants Received

Archan Misra, Youngki Lee, and Richard C. Davis. *Multi-Device Adaptive Gestures & Interfaces (MAGI): Creating a Wearable Ecosystem*, Singapore Ministry of Education Tier-II Grant, 1/2015 – 12/2017, SGD 533,543.

Richard C. Davis. *Prototyping Video Games with Animation*, Singapore Media Development Authority/GAMBIT Grant, 4/2010 – 7/2012, SGD 150,000.

Talks

Conference and Workshop Presentations

Using Optimization to Design Fast, Simple, and Versatile User Interfaces. CHI 2015 Workshop on Principles, Techniques and Perspectives on Optimization and HCI, Seoul, South Korea, April 2015.

PlaySketch: Turning Animation Sketches Into Game Logic. IUI 2014 Workshop on Sketch: Pen and Touch Recognition, Haifa, Israel, February 24, 2014.

Prototyping Video Games with Animation, Games and Innovation Research Seminar, University of Tampere, Finland, May 6, 2011.

Playing with Recognizers: A Call for an Extensible Editor. CHI 2010 Workshop on Designing Sketch Recognition Interfaces, Atlanta, GA, April 11, 2010.

SketchWizard: Wizard of Oz Prototyping of Pen-Based User Interfaces. UIST 2007, Newport, RI, October 2007.

Informal Animation Sketching with K-Sketch: The Kinetic Sketch Pad. UIST 2005 Doctoral Consortium, Seattle, WA October 2005.

Choosing Animation Features in K-Sketch. VL/HCC 2005 Graduate Student Consortium, Dallas, TX, September 2005.

A Visual Language for Animating Sketches. VL/HCC 2004 Graduate Student Consortium, Rome, Italy, September 2004.

Informal Animation Sketching: Requirements and Design. AAAI Fall Symposium on Making Pen-Based Interaction Intelligent and Natural, Alexandria, VA, October 2004.

Invited Talks

Tools for Humans: Creativity, Collaboration, and Education. International Symposium on Interaction Design and Human Factors, Kochi University of Technology, Kochi, Japan, November 26, 2014.

Creative Tools that Encourage Iteration and Refinement, PayPal, Singapore, July 24, 2013.

Creative Tools that Encourage Iteration and Refinement, Microsoft Research, Cambridge, United Kingdom, July 9, 2013.

Designing to Promote Creative Flow, Singapore HCI Society Meeting, National University of Singapore, Singapore, February 29, 2012.

SketchWizard: Wizard of Oz Prototyping of Sketch-based User Interfaces, Singapore HCI Symposium, National University of Singapore, Singapore, February 27, 2012.

Computer Support for Creative Flow, Microsoft Research, Redmond, WA, USA, December 2, 2011.

Computer Support for Creative Flow, Department of Computer Science and Engineering, University of Washington, Seattle, WA, USA, November 30, 2011.

Informal Animation Sketching with K-Sketch, College of Information Sciences and Technology, Pennsylvania State University, State College, PA, USA, May 31, 2011.

K-Sketch: Kinetic Sketching for Novices. Learning Sciences and Technologies Academic Group, National Institute of Education, Nanyang Technological University, Singapore, February 23, 2010.

Human-Computer Interaction: The Wild Frontier of Information Technology. School of Information Systems, Singapore Management University, Singapore, December 8, 2009.

The Non-human Actor and the Attraction of Animation (panel), Social Sciences Capstone Seminar: Action, Agency, Agendas, and Activisms, Singapore Management University, Singapore, September 22, 2009.

K-Sketch: A "Kinetic" Sketch Pad for Novice Animators. School of Computing, National University of Singapore, Singapore, February 25, 2009.

K-Sketch: A "Kinetic" Sketch Pad for Novice Animators. Adaptive Systems and Interaction Group, Microsoft Research, Redmond, WA, September 25, 2008.

K-Sketch: A "Kinetic" Sketch Pad for Novice Animators. School of Interactive Computing, Georgia Institute of Technology, Atlanta, GA November 2007.

Media Coverage

Celeste Biever. Easy animation to get novices jumping for joy. *New Scientist*, issue 2524, November 5, 2005, p 26.

Professional Affiliations and Activities

Conference Committees and Staff Positions

- Augmented Human International Conference, Singapore, March 9-11, 2015: Sponsorship and Finance Chair.
- ACM Conference on Human Factors in Computing Systems (CHI), Seoul, South Korea, April 18-23, 2015: Program Committee Associate Chair
- Workshop on Sketch: Pen and Touch Recognition, International Conference on Intelligent User Interfaces (IUI), Haifa, Israel, February 24, 2014: Co-chair.
- International Conference on the Theory and Application of Diagrams, University of Kent, Canterbury, UK, July 3-5, 2012: Program Committee.

- International Workshop on Mobile Computing Systems and Applications (HotMobile), San Diego, CA, USA, February 28-29, 2012: Program Committee.
- International Symposium on Sketch-Based Interfaces and Modeling (SBIM), Vancouver, BC, Canada, August 5-7, 2011: Program Committee.
- VL/HCC Workshop on Sketch Tools for Diagramming, Herrsching am Ammersee, Germany, September 15, 2008: Program Committee.
- ACM Symposium on User Interface Software and Technology (UIST), San Francisco, CA, USA, November 1-4, 1998: Student Volunteer Chair.

Other Committees

- i.JAM Reload Expert Panel, Singapore, August 12, 2014 – August 11, 2015: Technical Expert Panelist

Referee/Reviewer

- ACM
 - CHI: 2005, 2007–2015
 - UIST: 1998, 2004–2013, 2015–2016
 - ToCHI: 2010, 2013
 - TiiS (ACM Transactions on Interactive Intelligent Systems): 2014–2015
 - ECIS (Engineering Interactive Computing Systems): 2013
 - ITS (Interactive Tabletops and Surfaces): 2011
 - SIGGRAPH Asia: 2010
 - Creativity and Cognition: 2009
 - IUI (Intelligent User Interfaces): 2008
 - SIGGRAPH: 2007, 2008
 - CSCW: 2004, 2016
- IEEE
 - Computer Graphics and Applications: 2010
 - Software Journal: 2009
- Asia-Pacific CHI: 2012
- Computer-aided Design and Applications Journal: 2010
- Journal of Visual Languages and Computing: 2009
- Graphics Interface Conference: 2005, 2008

Campus and Academic Service

- Singapore Management University Faculty Senate (2011-2012)

Student Advising

- | | | |
|--------------------|-------------------|---------------------|
| • Camellia Zakaria | Graduate | Aug 2014 - present |
| • Kenny Choo | Graduate | Jan 2013 - present |
| • Paul Taele | Visiting Graduate | Jun 2013 – Jul 2013 |
| • Ryder Ziola | Visiting Graduate | Mar 2012 – Sep 2012 |
| • Shu Ke | Graduate | Aug 2010 – Jun 2013 |

- Kawin Boonyapredeee Graduate Jan 2010 – Aug 2010
- Guan Mengyuan Visiting Graduate Apr 2010 – Mar 2011
- Zhang Rui Visiting Graduate Jan 2010 – Dec 2010

Citizenship

United States Citizen

Singapore Permanent Resident