

CHIA SHEN

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Harvard University
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EDUCATION

Ph.D. in Computer Science

University of Massachusetts, Amherst – 1992

Thesis Title: “*An Integrated Approach to Dynamic Task and Resource Management in Multiprocessor Real-Time Systems*”

M.S. in Computer Science

University of Massachusetts, Amherst – 1986

Thesis Area: Multi-Access Computer Networks

B.S. in Computer Science

SUNY Stony Brook – 1983

APPOINTMENTS

Harvard University

2009 - Present

Senior Research Fellow, SEAS Harvard University
Director, SDR Lab (<http://sdr.seas.harvard.edu/>)

June 2008 – July 2009

Senior Scientist and Program Manager, Initiative in Innovative Computing (IIC), Harvard University

Jan 2008 – May 2008

Visiting Senior Scientist, IIC Harvard University

University of Toronto The School of Graduate Studies

2007 – 2010

Member of the Graduate Faculty (Adjunct)

Mitsubishi Electric Research Laboratories (MERL)

2003 – 2006

Associate Director and Senior Research Scientist

2001 – 2008

Senior Research Scientist

1993 – 2000

Research Scientist

RSEARCH INTERESTS

Human Computer Interaction (HCI), Future Learning Technologies, Computer Supported Collaborative Learning, Big Data Visualization, Interaction Design.

AWARDS

- ACM *Recognition of Service Awards* in 2007 and 2012
- Computer Supported Collaborative Learning 2013 *Best Design Paper Award* “Going Deep: Supporting collaborative exploration of evolution in natural history museums”
- Pervasive Gaming Applications 2006 *Best Paper Award* "Multimodal Multiplayer Tabletop Gaming"
- IEEE ifip 2010 *Outstanding Contribution Award*
- Mitsubishi Electric Corporation “*The Outstanding Contributions to the Development of DiamondTouch Software and Hardware*” Award, 2004.

SELECTED GRANTS

“Life on Earth” (PI)

A National Science Foundation-funded and Harvard lead multi-institutional project

NSF EHR/DRL AISL #1010889 \$2,312,150,

Award period: 09/01/2010 to 01/31/2015

“The Contribution of Natural History Museums to Science Education” (co-PI)

Multi-institutional Phase I, US and UK Collaborative Planning Project

Collaborative funding: NSF DRL/AISL Science Learning+, US and Wellcome Trust, UK £100,331 [total], £67,698 [From Wellcome]

Award period: 03/01/2015 to 10/31/2015

“Evolution Lab” (PI)

A PBS/WGBH NOVA Digital Lab

Biogen IDEC \$300,000

Award period: 11/03/2014 to 09/19/2015

"Visualization Groupware and Environment for Collaborative Geospatial Data Exploration, Analysis, and Presentation" (PI)

DoD ARDA(NGA) National Geospatial Intelligence Agency HMI1582-05-1-2005 \$264,000

Award period: 02/2005 to 01/2006

MEDIA and PRESS

PBS NOVA Engaging Science (July 21, 2014)

<http://www.pbs.org/wgbh/nova/blogs/education/2014/07/life-on-earth-project-turns-evolution-into-a-gaming-experience/>

Biomedical Computation Review (October 2013)

“Digging Deep into the Tree of Life”

<http://biomedicalcomputationreview.org/content/digging-deep-tree-life>

Harvard Gazette on Innovation (September 25, 2013)
“The Watch Word Is Innovation”
<http://news.harvard.edu/gazette/story/2013/09/the-watchword-is-innovation/>

Science Daily (June 4, 2012)
“Teaching tree-thinking through touch”
www.sciencedaily.com/releases/2012/06/120604111121.htm

Wall Street Journal Business (Health Industry) (July 26, 2011)
“Playing on a Tablet as Therapy”

Vector Boston Children’s Hospital’s science and clinical innovation (November 10, 2010)
“Kids with cerebral palsy test the latest touchscreen technology”
<http://vectorblog.org/2010/11/kids-with-cerebral-palsy-test-the-latest-touchscreen-technology/>

The National Geographic Explorer: Season 20, Episode 12 (2006)
Episode “The Science of Surveillance”
<http://channel.nationalgeographic.com/channel/explorer/galleries/episode-science-of-surveillance/at/science-of-surveillance-2-838/>

Computer Power User Magazine Vol. 5 Issue 6) Page(s) 106-107 (June 2005)
“Under Development – A Peek at What’s Brewing in the Laboratory”

PROFESSIONAL ACTIVITIES

Chair of Steering Committee ACM International Conference on Interactive Tabletops and Surfaces (ITS)
http://its2014.org/organization/steering_committee/

Conference General Chair 20th ACM Symposium on User Interface Software and Technology (UIST)
<http://www.acm.org/uist/uist2007/>

Editorial Board ACM “Computers in Entertainment”

Conference and Journal Referee ACM CHI, CSCW, UIST
Computer Graphics and Applications
IEEE Real Time Systems Symposium
IEEE Real Time Technology and Applications Symposium
IEEE Transactions on Computers
IEEE Transactions on Parallel Distributed Systems
International Conference on Distributed Computing Systems

Member ACM
IEEE (Senior Member)
IEEE Technical Committees

- Real Time Systems (1998)
- Operating Systems and Application Environments (1999)

Consortium Representative ATM Forum, primary representative for Mitsubishi Electric corporation, Principal Member, April 1993 – May 1997

NSF Review Panels CISE IIS/HCC, EHR DRL AISL/ITEST

KEYNOTES & LECTURES

- 2015 (Scheduled) Bioengineering Seminar Series speaker, BioEngineering, Stanford University
March 30, 2015
- 2014 Guest Lecture: CS279 Fall 2014 Topics in Human Computer Interaction Research, SEAS,
Harvard University
- 2012 Guest Lecture: CS179 Spring 2012 Design of Interactive Systems, SEAS, Harvard University
- 2011 Invited Speaker: Future of Tabletop Computing, Tsinghua University Beijing China, “*Taming the
Technology: Engage them! Communicating Science with Multi-Touch*”
- 2010 China Distinguished HCI Speaker Series & China Symposium on Human Computer
Interaction (http://research.microsoft.com/en-us/events/chinahci2010/speaker_series.aspx)
“*MultiTouch Coming of Age: Transforming the Way Science Is Experienced*”.
March 2010. Beijing, China.
- Keynote: IEEE/IFIP EUC 2010 (International Conferences on Embedded and Ubiquitous
Computing. Hong Kong SAR, China, December 11-13, 2010
- Keynote: HHME 2010 (The 6th Joint Conference on Harmonious Human Machine Environment).
September 23, 2010. Luoyang, China.
- 2009 Keynote: ACM International Conference on Interactive Tabletops and Surfaces
- Keynote: “The Myth of Touch” Invisible Computing: Novel Interfaces to Digital Environments
EFPL, Lausanne, Switzerland June 4, 2009
- 2007 Keynote: Shareable Interfaces, UK June 19 – 20, 2007
- Keynote: Geodan Day “De kunst van Geo-Innovatie” (The Art of Geo-Innovation), Amsterdam,
The Netherlands June 6, 2007
- 2006 Keynote: *First European Conference on Technology Enhanced Learning (October 1-4,
2006) “From Clicks to Touches: Enabling Face-to-Face Shared Interface”*
- Tufts University, Computer Science Department 2006 Colloquia
“*From Clicks to Touches: Enabling Face-to-Face Shared Interface*”
- Stanford University, HCI seminar
“*A Critical Look at Tabletop Research*”
- 2005 *Understanding Multi-User Interactions on Direct-Touch Surfaces*

MIT CSAIL, HCI seminar series

Interactions on Shared Surfaces
IBM Almaden, HCI seminar

Understanding Multi-User Interactions on Direct-Touch Surfaces
MIT CSAIL, HCI seminar series

2003 *Interactions on Shared Surfaces*
Stanford University, HCI group

2000 *e-Factory: Dream or Reality, and Where is the Missing Link?*
Distinguished Lecture Series, Malardalen University (Sweden)

1999 Guest Lecture: Real Time Systems, MIT

MidART: Middleware Architecture for Distributed Real Time Systems
Guilin Institute of Electronic Technology (Guilin, China)

1996 *On ATM Support for Distributed Real Time Applications*
IEEE Real Time Technology and Applications Symposium, tutorial

POST-DOCTORAL MENTORING

- Florian Block (SEAS, Harvard University, January 2010 – September 2013)
- Brenda C. Phillips (SEAS, Harvard University, April 1 2011 – March 31, 2012)
- Frederic Venier (MERL, January 1, 2000 – September 2003)

PHD & MASTER'S COMMITTEE MEMBERSHIP

- Massachusetts Institute of Technology, Media Lab: Daniel Leithinger (Master's Thesis committee, 2012).
- University of Toronto: Daniel Wigdor, (Ph.D. Thesis committee, Defense date: March 2008)
- University of Calgary: Edward Tse, (Ph.D. Thesis committee, Defense date: November 2007)
- Stanford University: Meredith Ringel Morris, (Ph.D. Thesis committee, Defense date: March 2006)
- University of Massachusetts, Amherst: Oscar J. Gonzales, (Ph.D. Thesis committee, Defense date: May 2000)

GRADUATE STUDENT RESEARCH ADVISING

- Michael Horn (Research intern, 2008 – 2010)
- Bertrand Schneider (Research intern, 2009 – 2010)
- Laurence Muller (Research intern, 2009 – 2010)

UNDERGRADUATE STUDENT RESEARCH ADVISING

- Larry Kyrala, 2011 (SEAS Faculty Advisor: Hanspeter Pfister)
Senior thesis: "FloTree: A Visualization of the Tree of Life as a Dynamic Process"
- Chris Chua 2012 (National University of Singapore)
Senior thesis: FloTreeSim: An interactive simulation system for learning evolution

PUBLICATIONS

Book Chapters

"Tabletop Games: Platforms, Experimental Games and Design".

Michael Haller, Forlines C, Koeffel C, Leitner J, Shen C.

In Art and Technology of Entertainment Computing and Communication - Advances in Interactive New Media for Entertainment Computing, Editor: Adrian David Cheok

ISBN: 978-1-84996-136-3 (Print) 978-1-84996-137-0 (Online) pp 271-297, 2010 Springer London.

“Collaborative Tabletop Research and Evaluation: Interface and Interactions on Direct-Touch Horizontal Surfaces”.
Shen, C., Ryall, K., Forlines, C., Esenther, A., Vernier, F.D., Everitt, K., Wu, M., Wigdor, D., Ringel Morris, M., Hancock, M., Tse, E.

Pages 111-128. In *“Interactive Artifacts and Furniture Supporting Collaborative Work and Learning”*.
Dillenbourg, P., Huang, J., and Cherubini, M., Eds. *CSCL Series*. Springer, New York, USA, 2008.

“Visualization, Estimation and User-Modeling for Interactive Browsing of Personal Photo Libraries”

Tian Q, Moghaddam B, Lesh N, Shen C, Huang TS.

In *Managing Multimedia Semantics*. Srinivasan U, Nepal S, Hershey,

DOI: 10.4018/978-1-59140-569-6, ISBN13: 9781591405696, ISBN10: 1591405696, EISBN13: 9781591405436

PA: IRM Press; 2005. pp. 193-222.

Refereed Journal and Conference Papers

2015

“Fluid Grouping: Quantifying Group Engagement around Interactive Tabletop Exhibits in the Wild”.

Block, F., Hammerman, J.K.L., Horn, M.S., Phillips, B.C., Diamond, J., Evans, M.E. & Shen, C.

In Proc. ACM Conference on Human Factors in Computing Systems CHI'15, ACM Press. 2015.

(BEST of CHI BEST PAPER AWARD)

“Visualizing the tree of life: Learning around an interactive visualization of biological data in museums”.

Horn M., Phillips Evans Block Diamond Shen,

2015 NARST Annual International Conference (NARST 2015),

2014

“Build-a-Tree: Parent-child gaming to learn about evolution in museum settings”. Villanosa, K.; Block, F.;

Horn, M.; Shen, C. (2014). *Games, Learning, and Society (GLS'14)*, Page(s): 7 pages, 2014.

2013

“Going Deep: Supporting collaborative exploration of evolution in natural history museums”.

Davis, P., Horn MS, Schrementi L, Block F, Phillips B, Evans EM, Diamond J, Shen C.

In Proceedings Conference on Computer Supported Collaborative Learning (CSCL'13),

Madison, Wisconsin. 2013 **(BEST DESIGN PAPER AWARD)**

“Active prolonged engagement: When does it become active prolonged "learning"?”

Evans, EM.; Phillips, B.; Horn, MM.; Block, F.; Diamond, J.; Shen, C.

Presentation at the 2013 Society for Research in Child Development Biennial Meeting, In D. Uttal (Chair),
Developmental Research Outside the Lab: Children's STEM Learning In Museums. Seattle, Washington,

“How is a human like a banana? Conceptions of humans as part of the natural world”

Phillips, B.; Evans, M.; Horn, M.; Block, F.; Diamond, J.; Shen, C.
Poster presented at the 2013 Society for Research in Child Development Biennial Meeting.
In J. Coley (Chair), Intuitive Concepts Versus Biological Science: The Case of Evolution, Seattle, Washington, 2013.

2012

“The DeepTree Exhibit: Visualizing the Tree of Life to Facilitate Informal Learning”, Block, F., Horn, M.S., Phillips, B.C., Diamond, J., Evans, E.M., and Shen, C. *IEEE Transactions on Visualization and Computer Graphics* (TVCG), 18(12), Page(s): 2789 - 2798, 2012, ISSN: 1077-2626.

“FlowBlocks: A Multi-Touch UI for Crowd Interaction”, Block, F., Wigdor, D., Phillips, B.C., Horn, M., Shen, C., In *Proceedings of the 25th ACM symposium on User Interface Software and Technology*, (UIST'12), Page(s): 497-508, Cambridge, MA, 2012, ISBN:978-1-4503-1580-7.

“Of BATs and APES: An interactive tabletop game for natural history museums”, Horn, M.S., Leong, Z.A., Block, F., Diamond, J., Evans, E.M., Phillips, B., and Shen, C. (2012). In *Proc. ACM Conference on Human Factors in Computing Systems CHI'12*, ACM Press.

“Phylo-Genie: Engaging Students in Collaborative Tree- Thinking through Tabletop Techniques”, Schneider, B., Strait, M., Muller, L., Elfenbein, S., Shaer, O., Shen, C., In *Proc. ACM Conference on Human Factors in Computing Systems (CHI'12)*, ACM Press.

2010

"Upper Extremity Rehabilitation of Children with Cerebral Palsy using Accelerometer Feedback on a Multitouch Display", Alan Dunne, Son Do-Lenh, Gearóid Ó' Laighin, Chia Shen, Paolo Bonato, *the Proceedings of 32nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'10)*, 1st - 4th September, 2010.

2009

"Visualizing Biodiversity with Voronoi Treemaps", Horn, M.S., Tobiasz, M., Shen, C., *Sixth annual International Symposium on Voronoi Diagrams in science and engineering*, Copenhagen, Denmark. June 23 - 26, 2009.

"Frogs and Toads Memory: A Voronoi Twist on the Classic Children's Game", Horn, M.S., Shen, C., *Sixth annual International Symposium on Voronoi Diagrams in science and engineering*, Copenhagen, Denmark. June 23 - 26, 2009.

“CThru: Exploration in a Video-Centered Information Space for Educational Purposes” Jiang, H., Viel, A., Bajaj, M., Lue, R.A., Shen, C., Pages 1247-1250. *Proc. of ACM CHI 2009*.

“The WeSpace: The Design, Development and Deployment of a Walk-Up and Share Multi-Surface Visual Collaboration System”. Wigdor, D., Jiang, H., Forlines, C., Borkin, M., Shen, C. Pages 1237-1246 *Proc. of ACM CHI 2009*.

2008

"Combining and Measuring the Benefits of Bimanual Pen and Direct-Touch Interaction of Interfaces", Brandl, P., Forlines, C., Wigdor, D., Haller, M., Shen, C., *International Working Conference on Advanced Visual Interfaces (AVI)*, ISBN: 0-978-60558-141-5, pp. 154-161, May 2008 (ACM Press)

“LivOlay: Interactive Ad-Hoc Registered Overlapping of Applications for Collaborative Visual Exploration”, Jiang, H., Wigdor, D., Forlines, C., Borkin, M., Kauggmann, J., Shen, C. In *Proceedings*

of CHI 2008, Florence, Italy, April 5-10, 2008, 4 pages

“System Design for the Extension of Personal Devices to a Table-Centered Multi-User, Multi-Surface Environment in the WeSpace”, Jiang, H., Wigdor, D., Forlines, C., Shen, C., Proceedings of *IEEE Tabletops and Interactive Surfaces 2008*, Amsterdam, the Netherlands, Oct 1-3, 2008.

2007

“LucidTouch: A See-Through Mobile Device”, Wigdor, D., Forlines, C., Baudisch, P., Barnwell, J., Shen, C., (2007). *Proceedings of the 20th Annual ACM Symposium on User Interface Software and Technology*, Newport, Rhode Island, October 7-10, 2007, 10 pages ACM press.

“Multimodal Multiplayer Tabletop Gaming”, Tse, E., Greenberg, S., Shen, C., Forlines, C., *ACM Computers in Entertainment, Vol. 5, No. 2. Article 12*. Publication Date: August 2007. 12 pages. DOI=10.1145/1279540.1279552 <http://doi.acm.org/10.1145/1279540.1279552>

“Direct-Touch vs. Mouse Input for Tabletop Displays”, Forlines, C., Wigdor, D., Shen, C., Balakrishnan, R. (2007). *Proceedings of the 2007 ACM Conference on Human Factors in Computing Systems (CHI)*. ACM Press.

“Perception of Elementary Graphical Elements in Tabletop and Multi-Surface Environments”, Wigdor, D., Shen, C., Forlines, C., Balakrishnan, R. (2007). *Proceedings of the 2007 ACM Conference on Human Factors in Computing Systems(CHI)*. ACM Press.

“How Pairs Interact Over a Multimodal Digital Table”, Tse, E., Shen, C., Greenberg, S., Forlines, C. (2007). *Proceedings of the 2007 ACM conference on Human factors in Computing Systems (CHI)*. ACM Press.

2006

“Multimodal Multiplayer Tabletop Gaming”, Tse, E., Greenberg, S., Shen, C., Forlines, C., *Proceedings of the International Workshop on Pervasive Gaming Applications (PerGames 2006)*, Dublin, Ireland May 07th, 2006). (**BEST PAPER AWARD**)

“Exploring the Effects of Group Size and Display Configuration on Visual Search”, Forlines, C., Shen, C., Wigdor, D., Balakrishnan, R., *Proceedings of the 2006 ACM conference on Computer supported cooperative work*, (Banff, Alberta, Canada, 2006), ACM Press.

“Multi-User, Multi-Display Interaction with a Single-User, Single-Display Geospatial Application” Forlines, C., Esenther, A., Shen, C., Wigdor, D., and Ryall, K. *Proceedings of the 2006 ACM conference on User Interface Software and Technology*, (Montreux, Switzerland, 2006), ACM Press.

“Under the Table Interaction”, Wigdor, D., Leigh, D., Forlines, C., Shen, C., Shipman, S., Barnwell, J., and Balakrishnan, R. *Proceedings of the 2006 ACM conference on User Interface Software and Technology*, (Montreux, Switzerland, 2006), ACM Press.

“Informing the Design of Direct-Touch Tabletops”, Shen, C., Ryall, K., Forlines, C., Esenther, A., Vernier, F.D., Everitt, K., Wu, M., Wigdor, D., Morris, M.R., Hancock, M., and Tse, E., *Special Issue of IEEE Computer Graphics and Applications*, September/October, 2006.

“Table-Centric Interactive Spaces for Real-Time Collaboration: Solutions, Evaluation, and Application Scenarios”, Wigdor, D., Shen, C., Forlines, C., Balakrishnan, R., *CollabTech 2006*, July 2006.

“Enabling Interaction with Single User Applications through Speech and Gestures on a Multi-User Tabletop”, E. Tse, C. Shen, S. Greenberg, C. Forlines, *Advanced Visual Interfaces(AVI) 2006. May 23 -2, 2006, Venice, Italy.*

“Effects of Display Position and Control Space Orientation on User Preference and Performance”, D. Wigdor, C. Shen, C. Forlines, R. Balakrishnan. *Proceedings of CHI 2006.* April 22-27, 2006,, Montreal, Quebec, Canada.

“Rotation and Translation Mechanisms for Tabletop Interaction”. M.S. Hancock, F.D. Vernier, D. Wigdor, S. Carpendale, and C. Shen. *IEEE International Workshop on Horizontal Interactive Human-Computer Systems (TableTop)*, Adelaide, Australia, January 2006. (pp. 79-88) IEEE Computer Society Order Number P2494, ISBN 0-7695-2494-X

“Gesture Registration, Relaxation, and Reuse for Multi-Point Direct-Touch Surfaces”. M. Wu, C. Shen, K. Ryall, C. Forlines, and R. Balakrishnan. *IEEE International Workshop on Horizontal Interactive Human-Computer Systems (TableTop)*, Adelaide, Australia, January 2006. (pp. 183-190) IEEE Computer Society Order Number P2494, ISBN 0-7695-2494-X

“MultiSpace: Enabling Electronic Document Micro-mobility in Table-Centric, Multi-Device Environments”. K. Everitt, C. Shen, K. Ryall, and C. Forlines. *IEEE International Workshop on Horizontal Interactive Human-Computer Systems (TableTop)*, Adelaide, Australia, January 2006. (pp. 27-34) IEEE Computer Society Order Number P2494, ISBN 0-7695-2494-X

“Experiences With and Observations of Direct-Touch Tables”, Ryall, K., Ringel Morris, M., Everitt, K., Forlines, C., Shen, C., *IEEE International Workshop on Horizontal Interactive Human-Computer Systems (TableTop)*, Adelaide, Australia, January 2006. (pp. 89-96) IEEE Computer Society Order Number P2494, ISBN 0-7695-2494-X

2005

"Visualization, Estimation and User-Modeling for Interactive Browsing of Personal Photo Libraries," Q. Tian, B. Moghaddam, N. Lesh, C. Shen, and T.S. Huang. *Chapter 9, pp. 193-222, Book Chapter of Managing Multimedia Semantics*, edited by Dr. U. Srinivasan and Dr. S. Nepal, ICT Centre CSIRO, Australia, July 2005, ISBN 1-59140-569-6.

“DTLens: multi-user tabletop spatial data exploration”. C. Forlines and C. Shen. *Proceedings of the 18th Annual ACM Symposium on User interface Software and Technology* (Seattle, WA, USA, October 23 - 26, 2005). UIST '05. ACM Press, New York, NY. pp. 119-122.

“DocuBits and Containers: Providing e-Document Micro-Mobility in a Walk-up Interactive Tabletop Environment”. K. Everitt, C. Shen, K. Ryal, and C. Forlines *Proceedings of Human-Computer Interaction - INTERACT 2005: IFIP TC13 International Conference* (Rome, Italy, 2005), pp. 998-1001.

“Under My Finger: Human Factors in Pushing and Rotating Documents Across the Table”. C. Forlines, C. Shen, and F.D. Vernier. *Proceedings of Human-Computer Interaction - INTERACT 2005: IFIP TC13 International Conference*, (Rome, Italy, 2005), pp. 994-997.

“iDwidgets: Parameterizing Widgets by User Identity”. K. Ryall, A. Esenther, K. Everitt, C. Forlines, M.R. Morris, C. Shen, S. Shipman, and F.D. Vernier, *Proceedings of Human-Computer Interaction - INTERACT 2005: IFIP TC13 International Conference*, (Rome, Italy, 2005), pp. 1124-1128.

“Exploring Non-Speech Auditory Feedback at an Interactive Multi-User Tabletop”. M.S. Hancock, C. Shen, C. Forlines, and K. Ryall. *Proceedings of the 2005 Conference on Graphics interface* (Victoria, British Columbia, May 09 - 11, 2005). ACM International Conference Proceeding Series, vol. 112, pp. 41-50.

“CoR²Ds: Context-Rooted Rotatable Draggables for Tabletop Interaction”. C. Shen, M.S. Hancock, C. Forlines, and F.D. Vernier. *ACM CHI '05 Extended Abstracts on Human Factors in Computing Systems* (Portland, OR, USA, April 02 - 07, 2005). CHI '05. ACM Press, New York, NY, pp. 1781-1784.

“Glimpse: A Novel Input Model for Multi-Level Devices”. C. Forlines, C. Shen, and B. Buxton. *ACM CHI '05 Extended Abstracts on Human Factors in Computing Systems* (Portland, OR, USA, April 02 - 07, 2005). CHI '05. ACM Press, New York, NY, pp. 1375-1378.

“Modal Spaces: Spatial Multiplexing to Mediate Direct-Touch Input on Large Displays”. K. Everitt, C. Shen, K. Ryall, and C. Forlines. *CHI '05 Extended Abstracts on Human Factors in Computing Systems* (Portland, OR, USA, April 02 - 07, 2005). CHI '05. ACM Press, New York, NY, pp. 1359-1362.

2004

“Conflict Resolution in Paper and Digital Worlds: Two Surveys of User Expectations”. Morris, MR, Forlines C, Ryall K, Shen C. 2004. *Proceedings of CSCW 2004* (Chicago, Illinois, USA, November 06-10, 2004). CSCW 2004. ACM Press, New York, NY.

“Observations of a Shared Tabletop User Study”. Everitt, K, Forlines C, Ryall K, Shen C. 2004. *Proceedings of CSCW 2004* (Chicago, Illinois, USA, November 06 - 10, 2004). CSCW '04. ACM Press, New York, NY.

“Beyond Social Protocols: Multi-User Coordination Policies for Co-located Groupware”. M.R. Morris, K. Ryall, C. Shen, C. Forlines, and F.D. Vernier, *Proceedings of CSCW 2004* (Chicago, Illinois, USA, November 06 - 10, 2004). CSCW '04. ACM Press, New York, NY, pp. 262-265.

“Exploring the Effects of Group Size and Table Size on Interactions with Tabletop Shared-Display Groupware”. K. Ryall, C. Forlines, C. Shen, and M.R. Morris. *Proceedings of CSCW 2004*. (Chicago, Illinois, USA, November 06 - 10, 2004). CSCW '04. ACM Press, New York, NY, pp. 284-293.

“A New Multi-path Selection Scheme for Video Streaming on Overlay Networks”. Z. Ma, H-R Shao, and C. Shen. *IEEE International Conference on Communications (ICC)*, June 2004. Volume: 3, pp. 1330-1334
ISBN: 0-7803-8533-0 (Digital Object Identifier: 10.1109/ICC.2004.1312728)

“DiamondSpin: An Extensible Toolkit for Around-the-Table Interaction”. C. Shen, F.D. Vernier, C. Forlines, M. Ringel. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems* (Vienna, Austria, April 24 - 29, 2004). CHI '04. ACM Press, New York, NY, pp. 167-174.

“Release, Relocate, Reorient, Resize: Fluid Techniques for Document Sharing on Multi-User Interactive Tables”. M. Ringel, K. Ryall, C. Shen, C. Forlines, F.D. Vernier. *CHI '04 Extended Abstracts on Human Factors in Computing Systems* (Vienna, Austria, April 24 - 29, 2004). CHI '04. ACM Press, New York, NY, pp. 1441-1444

“Visualization and User-Modeling for Browsing Personal Photo Libraries”. B. Moghaddam, Q. Tian,

N. Lesh, C. Shen, T.S. Huang. *International Journal of Computer Vision*, 56 (1/3) pp.109-130, January-March 2004.

2003

“UbiTable: Impromptu Face-to-Face Collaboration on Horizontal Interactive Surfaces”. C. Shen, K.M. Everitt, K. Ryall. *Proceedings of UbiComp 2003*. LNCS 2864. pp. 281-288.

“FGS Enhancement Layer Truncation with Minimized Intra-Frame Quality Variation”. J. Zhou, H-R. Shao, C. Shen, M-T. Sun. *IEEE International Conference on Multimedia and Expo (ICME)*, Vol. 2, pp. 361-364, July 2003.

“Personal Digital Historian: Story Sharing Around the Table”. C. Shen, N. Lesh, F.D. Vernier. *ACM Interactions*, ISSN:1072-5520, Vol. 10, Issue 2, pp. 15-22, March/April 2003.

“Dynamic Resource Control for High-Speed Downlink Packet Access Wireless Channel”. H-R Shao, C. Shen, D. Gu, J. Zhang, P. Orlik. *International Conference on Distributed Computing Systems Workshops*, pp. 838-843, May 2003. (DOI Bookmark: <http://doi.ieeecomputersociety.org/10.1109/ICDCSW.2003.1203656>)

2002

“Sharing and Building Digital Group Histories”. C. Shen, N.B. Lesh, F.D. Vernier, C. Forlines, J. Frost. *Proceedings of the 2002 ACM Conference on Computer Supported Cooperative Work* (New Orleans, Louisiana, USA, November 16 - 20, 2002). CSCW '02. ACM Press, New York, NY, pp. 324-333.

“Building Reliable Component-Based Software Systems”. Gonzalez, O., Ramamritham, K., Shen, C., Fohler, G. *Artech House Publishers, ISBN 1-58053-327-2*, Chapter 15, July 2002.

“Visualization Techniques for Circular Tabletop Interfaces”. F.D. Vernier, N.B. Lesh, C. Shen. *Proceedings of AVI'2002* (Trento, Italy, May 22 - 24, 2002). pp. 257-263.

2001

“Adaptive-Weighted Packet Scheduling for Premium Service”. H. Wang, C. Shen, K. Shin. *IEEE International Conference on Communications (ICC)* (Helsinki, Finland, June 11-14, 2001) Vol 6, pp. 1846-1850, June 2001.

“Personal Digital Historian: User Interface Design”. C. Shen, N.B. Lesh, B. Moghaddam, P.A. Beardsley, R.S. Bardsley. *CHI '01 Design Expo, Extended Abstracts on Human Factors in Computing Systems* (Seattle, Washington, March 31 - April 05, 2001). CHI '01. ACM Press, New York, NY, pp. 29-30.

“Visualization and Layout for Personal Photo Libraries”. Moghaddam B., Tian Q. N., Lesh, N.B., Shen, C., Huang, T.S. *Content-Based Multimedia Indexing (CBMI'01)*, Brescia, Italy, September 18-20th, 2001.

“Building Real-Time Systems with Commercial-Off-The-Shelf Components”. O. Gonzalez, K. Ramamritham, C. Shen, and G. Fohler. Book Chapter in *Building Reliable Component-Based Systems*, Ivica Crnkovic and Magnus Larsson (editors), Artech House Publishers, 2001.

2000

“Adaptive-Weighted Packet Scheduling for Premium Service”. H.N. Wang, C. Shen, K.G. Shin. *ICC*

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