Tomer Moscovich

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DESIGN TECHNOLOGIST AND RESEARCH SCIENTIST

I'm an experienced design technologist who leads UX research and development for new products through rapid iterative design, integrated software and hardware prototyping, and continuous evaluation. I design interactions for new technologies, and develop new technologies to improve user experiences.

Highlights:
- Led interaction design and UX prototyping for Kindle Voyage Page Press feature.
- Led cross-device interaction design for Amazon Second Screen experience, and contributed to the design of supporting software framework.
- Led and took-part in research and development for dozens of concept and technology proof prototypes resulting in publications, patents, and new product features.
- Developed use-cases and algorithms for a new force-sensing multi-touch sensor.

Specialties: Touch, pen, and force interaction, gesture-based interaction, emerging display and input technologies, haptics.

EXPERIENCE

Amazon and Amazon Lab126   East Palo Alto, CA
Sr. Design Technologist and Research Scientist   January 2010—Present

- Led design technology efforts of R&D team that produced the Kindle Voyage PagePress feature, the Dash ordering button, and the Dash wand for Amazon Fresh.
- Led cross-device interaction design for Amazon Second Screen experience. Worked with design and software teams to ensure a consistent experience for video, music, and photos on the Kindle Fire tablets, Fire Phone, and Fire TV.
- Developed image and text quality prototypes leading to adoption of a high-DPI display in the Kindle Paperwhite.
- Developed product proposals via iterative design and prototyping using emerging touch, force, Wi-Fi, and other sensors, as well as reflective and head-up display technologies. Evaluated these for product-readiness and fit with product and user experience strategy.
- Maintained user experience vision and quality during technology transfer to product teams for several unreleased products.
- Ran and analyzed concept testing and usability evaluations.
- Advised hardware and software teams to ensure tight integration between UX design and technology capabilities.
- Contributed to dozens of patents filed for Amazon's intellectual property portfolio.

Touchco Inc.   New York, NY
Interaction Research and Development Lead   June 2009—January 2010
- Recruited by a successful technology startup to lead user experience development.
- Developed interaction methods for a new force-sensing multi-touch sensor.

- Developed algorithms for contact extraction and tracking from raw sensor data, and for palm and pen detection, as well as methods for sensor calibration and testing.
- Developed new input device concepts and drafted patent applications.
- Designed and documented touch library APIs.

INRIA at Université Paris-Sud Paris, France
Postdoctoral Fellow July 2008—July 2009
- Designed and prototyped new touchscreen input techniques and methods for navigating large network visualizations.
- Designed, conducted, and analyzed usability studies of these methods, and published findings in peer-reviewed conferences.

University of Toronto Toronto, Ontario
Postdoctoral Fellow January 2007—July 2008
- Developed new touch- and pen-based input methods, feedback mechanisms for touch input, and interaction with peripheral displays.
- Supervised research on haptic feedback techniques, search-based interfaces, and alertness-monitoring in sleep patients.

University of Tokyo Tokyo, Japan
Visiting Researcher Summer 2004
- Developed a multi-touch performance animation technique based on a fast constraint-based shape deformation method.
- Deformation method has been independently integrated into Adobe Photoshop and related software.

Microsoft Research Redmond, WA
Research Intern Summers 2001—2003
- Developed and evaluated methods for reflowable digital ink annotations resulting in a conference publication and two patents.

EDUCATION

Brown University, Providence, RI
Ph.D. in Computer Science, May 2007
Dissertation: Principles and Applications of Multi-touch Interaction
Advisor: John F. Hughes

Brown University, Providence, RI
Sc.M. in Computer Science, May 2001

New York University, New York, NY
B.A. in Computer Science and Mathematics, May 1999

SKILLS

Broad range of ideation, design, and prototyping skills.
Usability evaluation, user study design and analysis.
Expertise in 2D and 3D computer graphics.
Programing languages: Java, JavaScript, C#, C++, C.
Tools: Matlab, Adobe Illustrator, Adobe Photoshop.

PUBLICATIONS

Refereed Conference Publications

Yu, C., Balakrishnan, R., Hinckley, K., Moscovich, T., Shi Y. "Implicit bookmarking: Improving support for revisitation in within-document reading tasks." *International Journal of Human-Computer Studies* (October 2012).

Moscovich, T. "Contact Area Interaction with Sliding Widgets." In *Proceedings of UIST 2009* (October 2009) Victoria, Canada.

Chu G., Moscovich, T., Balakrishnan, R. "Haptic Conviction Widgets." In *Proceedings of Graphics Interface 2009* (May 2009) Kelowna, Canada.

Moscovich, T., Chevalier, F., Henry, N., Pietriga, E., Fekete, J.D. "Topology-Aware Navigation in Large Networks." In *Proceedings of CHI 2009* (April 2009) Boston, USA.

Bi, X., Moscovich, T., Ramos, G., Balakrishnan, R., Hinckley, K. "An Exploration of Pen Rolling for Pen-based Interaction." In *Proceedings of UIST 2008* (October 2008) Monterey, USA.

Moscovich, T., Hughes, J. F. "Indirect Mappings of Multi-touch Input Using One and Two Hands." In *Proceedings of CHI 2008* (April 2008) Florence, Italy.

Moscovich, T., Hughes, J. F. "Multi-finger Cursor Techniques." In *Proceedings of Graphics Interface 2006* (June 2006) Quebec City, Canada.

Igarashi, T., Moscovich, T., Hughes, J. F. "As-Rigid-As-Possible Shape Manipulation." *ACM Transactions on Graphics 24(3)* (July 2005) Los Angeles, USA.

Igarashi, T., Moscovich, T., Hughes, J.F. "Spatial Keyframing for Performance-Driven Animation." *ACM SIGGRAPH / Eurographics Symposium on Computer Animation* (July 2005) Los Angeles, USA.

Moscovich, T., Hughes, J.F. "Navigating Documents with the Virtual Scroll Ring." In *Proceedings of UIST 2004* (November 2004) Santa Fe, USA.

Bargeron, D., Moscovich, T. "Reflowing Digital Ink Annotations." In *Proceedings of CHI 2003* (April 2003) Fort Lauderdale, USA.

Keefe, D., Acevedo, D., Moscovich, T., Laidlaw, D., and LaViola, J. "CavePainting: A Fully Immersive 3D Artistic Medium and Interactive Experience." In *Proceedings of the 2001 Symposium on Interactive 3D Graphics* (March 2001) Raleigh, USA.

Ph.D. Dissertation

Moscovich, T. "Principles and Applications of Multi-touch Interaction." Dissertation. Brown University. 2007.

Patents

Moscovich, T., Doan, O. "Inter-device bearing estimation based on beamforming and motion data," *Patent #* 9,253,592. *Filed June 2014, granted February 2016.*

Moscovich, T., Bozarth, B., Beguin, J., Rosenberg, I., Yun, T. "Transferring content to a substantially similar location in a virtual notebook using a stylus enabled device," *Patent # 9,256,588. Filed September 2011, granted February 2016.*

Yun, T., Moscovich, T. "Automatic quote generation," *Patent # 9,256,889. Filed September 2012, granted February 2016.*

Rosenberg, I., Beguin, J., Perlin, K., Moscovich, T. "Gestures and touches on force-sensitive input devices," *Patent # 9,244,562. Filed July 2010, granted January 2016.*

Rosenberg, I., Beguin, J., Moscovich, T. "Capacitive stylus," *Patent # US9195351 B1. Filed March 2012, granted November 2015.*

Worley, C., Zarraga, J. Doan, O., Moscovich, T., "Touch control for immersion in a tablet goggles accessory," *Patent # US9158115 B1. Filed September 2013, granted October 2015.*

Moscovich, T., Yun, T. "Synchronizing physical and electronic copies of media using electronic bookmarks," *Patent # US9049398 B1. Filed March 2012, granted June 2015.*

Rosenberg, I., Beguin, J., Moscovich, T. "Two-sided touch sensor," *Patent # 8,810,524. Filed July 2010, granted August 2014.*

Gayles E. *et al.* "Service activity user interface," *Publication # US20150088966 A1. Filed December 2013, patent pending.*

Baldwin, L., Karakotsios, K., Moscovich, T., Noble, I. "Display integrated camera array," *Publication # US20140085245 A1. Filed September 2012, patent pending.*

Rosenberg, I., Bozarth, B., Beguin, J., Moscovich, T., Gao, S., Yun, T. "Magnetic stylus," *Publication # US20130009907 A1. Filed September 2011, patent pending.*

Bozarth, B., Beguin, J., Puckett, M., Rosenberg, I., Moscovich, T. "Incremental Page Transitions on Electronic Paper Displays," *Publication # US20130135215 A1. Filed November 2011, patent pending.*

Bargeron, D., Moscovich, T., Shilman, M., Wei, Z. "Digital ink annotation process and system for recognizing, anchoring and reflowing digital ink annotations," *Patent # 7,218,783. Filed Jun 2003 granted May 2007.*

Bargeron, D., Moscovich, T., Shilman, M., Wei, Z. "Recognizing, anchoring and reflowing digital ink annotations," *Patent # 8,250,463. Filed May 2007, granted August 2012.*

SERVICE

Associate Chair of the Program Committees for UIST 2010, CHI 2011, CHI 2012, CHI 2013, UIST 2014, CHI 2014.

Reviewer for: CHI, UIST, SIGGRAPH, GI, Eurographics, SIGGRAPH Asia, IEEE 3DUI, IJHCS, ITS, CSCW, IEICE, TVCG, ACM SIGGRAPH/Eurographics Symposium on Computer Animation, Eurographics Workshop on Sketch-Based Interfaces and Modeling, JGT, JCGT, Computers & Graphics.