DANIEL WIGDOR, PHD

Associate Professor of Computer Science, Sloan Research Fellow – Curriculum Vitae

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I am a citizen of Canada and Ireland, and am eligible to work without a visa the US and EU.

RESEARCH INTERESTS

My research lies in the area of Computer Science and Human Computer Interaction. I specialize in the design and engineering of user interface technologies, including software & UI, input and processing architectures, system design, sensing technologies, and input devices, typically for enablement of post-WIMP HCI. These projects are enabled through the study of psychophysics, ethnography, and psychology via empirical methods.

PROFESSIONAL EXPERIENCE

2017-2018 **Cornell Tech: Visiting Associate Professor**

From July 2017 to June 2018 I will be visiting Cornell Tech in New York City while on sabbatical from the University of Toronto. I will be teaching classes in human computer interaction, and conducting research in collaboration with my hosts and students.

2011-Present **University of Toronto**

Assistant Professor: January 2011 – June 2016. Associate Professor: July 2016 – Present.

Department of Mathematical and Computational Sciences;
Graduate Department of Computer Science;
Department of Mechanical and Industrial Engineering (status only); and
Co-Director, *Dynamic Graphics Project*

I am an associate professor of computer science at the University of Toronto. I hold appointments in three departments of the university, where I conduct research, supervise graduate students & postdoctoral fellows, and teach graduate and undergraduate classes. I am also co-director of the Dynamic Graphics Project, a group of 8 faculty and dozens of post docs and graduate students conducting research in the areas of computer graphics, human computer interaction, and computer vision.

2012-2016 **Tactual Labs: Science Advisor**

I was a cofounder of Tactual Labs, a startup out of my lab at the University of Toronto, which seeks to enable high-performance user input to interactive computers. Tactual has secured over $10M in funding, and has offices in Virginia, Texas, New York, Maine, and Toronto. I served as one of several science advisors to the company.

2011-2012 **Harvard University: Associate of the School of Engineering and Applied Sciences,**

As a member of the SDR Lab of SEAS at Harvard University, I participated in and provide supervision of research projects carried-out by post-doctoral fellows and interns.

2010-2012 **University of Washington: Affiliate Assistant Professor**

I served as an affiliate assistant professor in both the *Department of Computer Science & Engineering* and the *Information School* at the University of Washington.

2010 **Microsoft Research: Researcher**

As a researcher at MSR, my mandate was to carry-on an active research agenda (including publication and patents), participate in service to the community, supervise graduate student interns, and drive innovation at Microsoft.

2008-2010 **Microsoft: User Experience Architect, Entertainment & Devices Division**

As a product team member, I held more than a half a dozen titles and roles. My ultimate position before moving to Microsoft Research was as the architect of user experiences of Natural User Interfaces at Microsoft's Entertainment & Devices division. I was responsible for ensuring a high-

quality, exciting user experience in platform and partner applications, coordinating across product groups, and driving industry standards for interaction. Throughout my tenure, I had a dual focus on product architecture and research.

2007-2008 **Harvard University: Fellow, Initiative in Innovative Computing (IIC)**

I was a fellow in the Scientists' Discovery Room project at Harvard University. I conducted ethnographic studies of astrophysicists at the Harvard Smithsonian Center for Astrophysics, and helped lead the design and implementation of the WeSpace (described in several publications listed below).

2005-2008 **Mitsubishi Electric Research Laboratories (MERL): Research Intern**

I was an intern at MERL over four multi-term appointments, working as part of the Diamond Space project under the supervision of Dr. Chia Shen. I conducted the majority of my PhD at MERL.

2003-2010 **Iota Wireless: Cofounder**

Cofounded Iota Wireless, a startup dedicated to text-entry techniques for mobile phones. Secured multiple rounds of financing, US & international patents, and general intellectual property issues, as well as a great deal of experience working at executive level of the wireless phone industry.

2001-2006 **University of Toronto: Sessional Instructor in the Department of Computer Science**

Served as instructor responsible for undergraduate classes in computer science. Class sizes varied from 25 to over 200 students. Supervised teams of TA's, developed course materials, delivered lectures, set tests and exams. Courses in topics in computer science, including algorithms, data structures, formal analysis, human computer interaction. Taught development for computers and mobile phones in Java, C, and C++.

2004 **Bruce Mau Design: Consulting Designer**

Collaborated with Bruce Mau Design and the Institute Without Boundaries in concept and implementation of *Markets Gallery* of the *Massive Change* project: http://www.massivechange.com.

1999-2003 **University of Toronto: Teaching Assistant in the Department of Computer Science**

Served as a teaching assistant in undergraduate classes at the University of Toronto. Led tutorials, consulted with professors on curriculum topics. Topics included computer programming, cryptography, algorithm design, formal analysis, software engineering, and human-computer interaction.

1999-2001 **University Health Network: Software Developer and Devices Specialist**

Developed an automated inventory application for the University Health Network's Desktop Rollout Project (Y2K replacement of > 4000 personal desktops). Worked as a *Devices Specialist*, investigating and evaluating the suitability of novel devices for their inclusion in the hospitals.

EDUCATION

2008 **Ph.D. Computer Science, University of Toronto**

Supervised by Prof. Ravin Balakrishnan at University of Toronto, though the majority of work conducted at Mitsubishi Electric Research Labs under the supervision of Dr. Chia Shen. Study of the use of multi-touch tabletops and large-scale, multi-surface, real-time collaborative environments. Thesis [N.4] below.

2004 **M.Sc. Computer Science, University of Toronto**

Supervised by Prof. Ravin Balakrishnan. Thesis [N.2] and papers [C.2, C.3] below.

2002 **Hon. B.Sc., University of Toronto**

Specialization in Human Computer Interaction, including major-equivalent in computer science, minor-equivalent in psychology and sociology. Paper [C.1] below.

AWARDS, FELLOWSHIPS, AND HONOURS[1]

2016 **ACM CHI 2016: Best Paper**

[C.52] below was named a *Best Paper* at ACM CHI 2016, which is awarded to the top 1% of submissions.

Invention of the Year, University of Toronto

Instant Printed Circuit Boards with Standard Office Printers and Inks.

Dean's Excellence Award, University of Toronto

Awarded to 5% of faculty in division for achievement in each of research, teaching, and service.

2015 **Alfred P. Sloan Research Fellowship in Computer Science ($60,000)**

The Sloan Research Fellowships "seek to stimulate fundamental research by early-career scientists and scholars of outstanding promise. These two-year fellowships are awarded yearly to 126 researchers in recognition of distinguished performance and a unique potential to make substantial contributions to their field."

ACM CHI 2015: Best Paper: Honorable Mention x 2

Both of [C.46] and [C.47] below were both called out for Honorable Mention, which is awarded to the top 5% of submissions, at *ACM CHI 2015*.

ACM CHI 2015: People's Choice Best Talk Award: Honorable Mention

Awarded to top 8 talks among more than 300 presented at ACM CHI. Talk was for [C.45] below.

Dean's Excellence Award, University of Toronto

Awarded to 5% of faculty in division for achievement in each of research, teaching, and service.

2014 **Early Researcher Award (ERA Round 9), Ontario Ministry of Research and Innovation ($150,000)**

Awarded to "best and brightest innovators and researchers" among full-time faculty in Ontario who are fewer than 10 years from receiving their PhD.

ACM CHI 2014: Best Paper

[C.41] below was named Best Paper, which is awarded to the top 1% of submission to ACM CHI 2014.

ACM CHI 2014: People's Choice Best Talk Award x 2

Awarded to top 8 talks among 300 presented at ACM CHI. Two of the 8 were awarded to my students: for talk delivered by MSc student, Jishuo Yang, for [C. 40] (below), and for talk delivered by intern advisee, Anthony Chen, for [C.41].

Dean's Excellence Award, University of Toronto

Awarded to 5% of faculty in division for achievement in each of research, teaching, and service.

2013 **Best Student Paper, GI 2013**

PhD student Michael Glueck received the *Michael AJ Sweeney Award* for best student paper for our paper, [C.36], below.

Invention of the Year, University of Toronto

Hybrid Systems and Methods for Low-Latency User Input Processing and Feedback.

Dean's Excellence Award, University of Toronto

Awarded to 5% of faculty in division for achievement in each of research, teaching, and service.

2012 **Dean's Excellence Award, University of Toronto**

Awarded to 5% of faculty in division for achievement in each of research, teaching, and service.

2011 **Association for Computing Machinery: ACM CHI Best Paper Honorable Mention**

At ACM CHI 2011 for [C.24] below.

2007 **Harvard University: Initiative in Innovative Computing Fellowship ($15,600)**

Research in the design multi-surface, multi-user, multi-touch room for astrophysicists.

[1] All figures CAD; where award was in another currency, converted at then-current exchange rate.

2004 **Association for Computing Machinery**

ACM UIST Best Paper Award

Wolfond Fellowship ($10,000)

Partial funding for Ph.D.

University of Toronto Fellowship ($75,000)

Funding for Ph.D.

2002 **University of Toronto Fellowship ($26,000)**

Funding for M.Sc.

Innis College Graduating Student Recognition Award

2001 **Hudson's Bay Company Award in Computer Science**

Awarded to the student who has demonstrated outstanding academic achievement at the end of third year.

ACADEMIC FUNDING[2]

2016 **National Science and Engineering Research Council: Discovery Grant: $215,000**

Enabling a Symphony of Devices.

Autodesk Research: $15,000

Unrestricted gift in support of the Sanders Series lectures, part of the Toronto User Experience (Tux) organization of HCI researchers.

2015 **OS Enhancement for Zero-Latency UI Response: $1,024,995.22**

NSERC-Collaborative Research & Development: $265,207.10
Ontario Centres of Excellence: Voucher for Innovation and Productivity: $150,000
Ontario Centres of Excellence: Talent Edge Fellowships: $60,000
Tactual Labs: $549,788.12

Real Virtuality: Making the Virtual, Physical: $420,000

NSERC-Collaborative Research & Development: $180,000
Ontario Centres of Excellence: Voucher for Innovation and Productivity: $150,000
Autodesk Research: $90,000

Autodesk Research: $36,000

Unrestricted gift in support of my research.

National Science and Engineering Research Council: Discovery Grant Supplement: $5,000

User interface feedforward and feedback supporting and enabling body tracking technologies.

Steven Sanders: Personal Gift: $43,431

Unrestricted gift in support of the Sanders Series lectures, part of the Toronto User Experience (Tux) organization of HCI researchers.

Autodesk Research: $15,000

Unrestricted gift in support of the Sanders Series lectures, part of the Toronto User Experience (Tux) organization of HCI researchers.

2014 **National Science and Engineering Research Council: Discovery Grant Supplement: $5,000**

User interface feedforward and feedback supporting and enabling body tracking technologies.

2013 **Connaught New Researcher Award: $50,000**

Awarded to support select new faculty at the University of Toronto.

Tactual Labs: $50,000

Project funding for collaborative research activities.

2012 **Microsoft Research ($40,000)**

Unrestricted gift in support of my research.

[2]All figures CAD; where award was in another currency, converted at then-current exchange rate.

Autodesk Research ($7,000)

Unrestricted gift in support of my research.

UI Feedforward and Feedback Supporting and Enabling Ubiquitous Computing: $396,000

Canadian Foundation for Innovation: $198,000
Ministry of Economic Development and Innovation, Ontario Research Fund: $198,000

National Science and Engineering Research Council: Discovery Grant Supplement: $5,000

User interface feedforward and feedback supporting and enabling body tracking technologies.

Mitacs Accelerate: $30,000

A Data-Driven Approach to Formulating Best Practices for Mobile Games. Project funding for Rebecca Dreezer, M.Sc. in Applied Computing, Uken Games.

Steven Sanders: Personal Gift: $90,000

Unrestricted gift in support of my research.

2011 **UI Feedforward and Feedback Supporting and Enabling Body Tracking Technologies: $265,000**

NSERC-Discovery Grant ($145,000)
NSERC-Discovery Accelerator Supplement (DAS) ($120,000)

The DAS Program provides substantial and timely resources to a small group of researchers whose research proposals suggest and explore high-risk, novel or potentially transformative concepts and lines of inquiry, and are likely to have impact by contributing to groundbreaking advances in the area.

Mitacs Accelerate: $30,000

Novel 3-D User Interfaces for improved situation awareness and mobile robot control. Project funding for Ben Chan, M.Sc. in Applied Computing, MacDonald Dettwiler and Associates.

University of Toronto: Startup Funding: $527,000

Startup funding for my position at U of T.

2007 **National Science Foundation ($8,000) (authored)**

Tabletop 2007 Student Volunteer Program

National Science Foundation ($20,000) (authored)

ISWC 2007

2002 **Microsoft Research ($33,000)**

Project funding.

CURRENT STUDENTS & POST DOCS

Michelle Annett, PDF

Since January, 2015.

Bruno de Araujo, PDF

Since January, 2015.

Michael Glueck, Ph.D.

Since January, 2013.

Seyong Ha, Ph.D.

Since September, 2015.

Peter Hamilton, Ph.D.

Since January, 2014.

Varun Perumal, Ph.D.

Since January, 2016.

Nicole Sultanum, Ph.D. (with Prof. Michael Brudno)

Since September, 2015.

Haijun Xia, Ph.D.
Since May, 2015.

Zhen Li, M.Sc.
Since September, 2015.

Zhicong Lu, M.Sc.
Since September, 2015.

Lin Han (U.G.) (with Nicole Sultanum)
Since September, 2016

ALUMNI

2016

Yupeng Zhang, M.Sc. (with Prof. Karan Singh)
Research MSc student. September 2014 – January 2016. *Ad Hoc Mimicry Enabled Online Character Control*. Proceeded to form startup company in China.

Anuruddha Hettiarachchi, M.Sc.
Research MSc student. September 2014 – January 2016. *Annexing Reality: Enabling Opportunistic Use of Everyday Objects as Tangible Proxies in Augmented Reality.* Published at peer-reviewed conference, see [C.54] below. Proceeded to work at Index Exchange (www.indexexchange.com).

Varun Perumal, M.Sc.
Research MSc student. January 2014 – January 2016. *Printem: Instant Printed Circuit Boards with Standard Office Printers & Inks.* Published at peer-reviewed conference, see [C.49] below. Also published [C.51] and [C.53] while an MSc student.

Alaa Abdulaal, M.Sc.A.C. (with Prof. Eyal de Lara)
Professional MSc graduate student, May 2015 – January 2016. *Persona-tailored User Experience for Enterprise Software*. Placement with Riva Modeling Systems Inc.

Jacqueline Bermudez, M.Sc.A.C.
Professional MSc graduate student, May 2015 – January 2016. *Moderated e-Forum*. Placement with Cardia eHealth & Behavioural Cardiology Research Unit (BRCU), Peter Munk Cardiac Centre, University Health Network.

Parastoo Abtahi, UG
Undergraduate thesis student. September, 2015 – April 2016. *A Tool for Visualization and Navigation Through a Network of Academic Papers.*

Victoria Bilbily, UG (with Nicole Sultanum)
Undergraduate summer research associate, from McMaster University. April 2016 – August 2016. *Sketching Stories with Game Physics*.

Alina Gvozdik, UG (with Michael Glueck)
Undergraduate research student. September, 2015 – August 2016. *Online Tutorials for PhenoBlocks: Phenotype Comparison Visualizations*.

Sang-Ah Han (UG) (with Michael Glueck)
Undergraduate research assistant. April 2016 – August 2016.

Mathew Lakier (UG) (with Dr. Michelle Annett)
Undergraduate summer research associate. April 2016 – August 2016. *From Manuals to Automatics*.

Steven Lee (UG) (with Dr. Bruno De Araujo and Dr. Ricardo Jota)
Undergraduate research associate, from University of Waterloo. April 2016 – August 2016. *Automated Latency Testing from Pen-Based Mobile Devices.*

Dhairya Patel, UG (with Dr. Ricardo Jota)
Undergraduate research student. January, 2016 – April 2016. *Reducing Latency for High Sample Rate Stylus Input Devices.*

Pok Man "Brian" To, UG

Undergraduate thesis student. September, 2015 – April 2016. *Understanding, Redesigning, and Integrating the Model and View Change Stacks in Interactive Computing.* Proceeded to work at Microsoft Inc.

Michael Wang (UG)

Undergraduate research associate. April 2016 – August 2016. *User-Defined Gestures Considered Harmful: Evaluating the Quality of UDG Gesture Sets.*

2015 **Ricardo Jota Costa, PDF**

Postdoctoral fellow. March 2012 – October 2015. Collaboration focused on passive haptics and low-latency user interfaces. Co-founded Tactual Labs, a spin-off from our group, and left to become a research scientist there. See [C.33, C.43, C.44, C.46, C.47, C.51, C.55] below. Proceeded to found a startup, Tactual Labs Inc., for which I served as science advisor (see above).

Haijun Xia, M.Sc.

Research MSc graduate. September 2013 – May 2015. *Zero-Latency Tapping: Using Hover Information to Predict Touch Locations and Eliminate Touchdown Latency*. Published at peer-reviewed conference, see [C.43] below. Proceeded to PhD program.

Rabia Aslam, M.Sc.

Research MSc graduate. September 2013 – December 2014. *The Force: Telekinetic & Teletactic Interaction with Distant Objects.* Proceeded to work at Sphero, Inc.

Adam Heuniken, UG

Undergraduate thesis student. Sept. 2014 – April 2015. *Exploring the Social Impact of Sharing Digital Actions in Public Spaces.* Proceeded to "Next 36" entrepreneurship program.

Rahil Hirani, UG (with Dr. Ricardo Jota)

Undergraduate research student from the University of Waterloo under the UTRECS program. January 2015 – August 2015. *OS Enhancement for Zero-Latency UI Response.*

Odhita Kamayana, UG (with Dr. Ricardo Jota)

Undergraduate research student. September 2015 – December 2015. *OS Enhancement for Zero-Latency UI Response.*

Matthew Lakier, UG (with Dr. Michelle Annett)

Undergraduate research student under the UTRECS program. April 2015 – August 2015. *Leveraging Haunted and Paranormal Experiences for Interaction and Display*.

Mingzhe Li, UG (with Dr. Michelle Annett)

Undergraduate research student under the UTRECS program. April 2015 – August 2015. *Leveraging Haunted and Paranormal Experiences for Interaction and Display*.

Evan Rocha, UG (with Dr. Ricardo Jota)

Undergraduate research student from the University of Waterloo under the UTRECS program. April 2015 – August 2015. *OS Enhancement for Zero-Latency UI Response.*

2014 **Jishuo Yang, M.Sc.**

Research MSc graduate. September 2013 – December 2014. *Panelrama: Enabling Easy Specification of Cross-Device Web Applications*. Published in peer-reviewed conference, see [C.40] below. Proceeded to work at IBM.

Peter Hamilton, M.Sc.

Research MSc graduate. September 2013 – December 2014. *Conductor: Enabling and Understanding Cross-Device Interaction.* Published at peer-reviewed conference, see [C.39] below. Proceeded to PhD program.

Andrew Pelegris, UG (with Michael Glueck)

Undergraduate research student under NSERC USRA program. April 2014 – August 2014. *Towards Visual Search Target Classification using Task-Evoked Pupillary Responses for Interactive Systems.*

Eleni Triantafillou, UG (with Jishuo Yang)

Undergraduate research student. Proceeded to PhD program. April 2014 – August 2014. *Information Retrieval in a Symphony of Devices.*

Benjamin McCanny, UG

Undergraduate research assistant. See [C.43] below. Proceeded to work at Google Inc.

2013 **Rebecca Dreezer, M.Sc.A.C.**

Professional MSc graduate student. Placement at Uken Games. April 2013 – December 2013. *Applying user research techniques to improve uptake in pay-to-play games*. Proceeded to work at Uken Games.

David Hoon, M.Sc.A.C.

Professional MSc graduate student. April 2013 – December 2013. Placement at Research in Motion. *Touch Interface for Small-Screen Web Experiences*.

Jay (Zhe) Yu, UG (with Dr. Ricardo Jota)

Undergraduate research intern. April 2013 – August 2013. *Zero-Latency Tapping: Using Hover Information to Predict Touch Locations and Eliminate Touchdown Latency.* Published at peer-reviewed conference, see [C.43] below. Proceeded to graduate studies at Carnegie Melon University.

Eric J.X. Yao, UG (With Dr. Ricardo Jota)

Undergraduate research intern under NSERC USRA program (2 terms). January 2013 – August 2013. *Snake Charmer: physically enabling virtual objects.* Published at peer-reviewed conference, see [51] below. Proceeded to graduate studies at the University of California, Berkeley.

Yan Sun, UG (with Michael Glueck)

Undergraduate research intern under NSERC USRA program. April 2013 – August 2013. *A Model of Navigation for Very Large Data Views*.

Benjamin McCanny, UG

Undergraduate thesis student. September 2012 – April 2013. *Designing Pen Interfaces that Adapt to Device Capabilities*. Proceeded to work at Google Inc.

Thariq Shihipar, UG

Undergraduate thesis student. September 2012 – April 2013. S*lide to X: Unlocking the Potential of Smartphone Unlocking*. Published at peer-reviewed conference, see [C.38] below. Proceeded to graduate studies at the Massachusetts Institute of Technology.

Ankith Giliyar Shanthiraj, UG

Visiting undergraduate research intern from India's National Institute of Technology under the MITACS GlobalLinks program. April 2013 – September 2013. *Zero-Latency Touch Visualization & Feedback.* Proceeded to graduate studies at the University of Texas, Austin. Summer 2013.

2012 **Michael Glueck, M.Sc.**

M.Sc. graduate. Thesis title: *A Model of Navigation for Very Large Data Views*. Published at peer-reviewed conference, see [C.36] below. Proceeded to PhD program. September 2011-December 2012.

Rajavi Shah, UG

Undergraduate research intern (2 terms). January 2012 – August 2012. *Morse Code as a text entry method.*

Stephanie Knapp, UG

Undergraduate research intern (2 terms). January 2012 – August 2012. *Learning can be fun: using games to teach user input skills.*

Faizan Haque, UG

Undergraduate research intern from the University of Waterloo. April 2012 – August 2012. *Enabling a Symphony of Devices.*

Osman Haque, UG (with Dr. Ricardo Jota)

Undergraduate research intern. April 2012 – September 2012. *Stackables: detecting stacking of projective-capacitive touch devices.*

Michael Andreae, UG

Undergraduate research intern. April 2012 – September 2012. *A Bicycle for the 21st Century.*

2011 **Brian Chan, M.Sc.A.C. (with Dr. Piotr Jasiobedzki @ MDA).**

Professional MSc graduate student. Placement at MacDonald, Dettwiler and Associates Ltd (MDA). April 2011 – December 2011. *Utilizing Mixed-Reality to Improve Autonomous Robot Control Interfaces*. Proceeded to become a researcher at MDA.

2010 **Tao Ni, Research Intern (Virginia Tech) @ Microsoft Research**

Co-advised intern at Microsoft Research with Amy Karlson. Project published at peer-reviewed conference, see [C.25] below. Summer 2010.

Shaun Kane, Research Intern (University of Washington) @ Microsoft Research

Co-advised intern at Microsoft Research with Meredith Ringel Morris and Annuska Perkins. Project published at peer-reviewed conference, see [C.27] below. Proceeded to become an Assistant Professor at the University of Colorado, Boulder. Summer 2010.

Roland Aigner, Research Intern (Upper Austria University of Applied Science) @ Microsoft Research

Co-advised intern at Microsoft Research with Hrvoje Benko. Fall 2010. *Understanding Mid-Air Hand Gestures: A Study of Human Preferences in Usage of Gesture Types.*

2009 **Dustin Freeman, Research Intern (University of Toronto) @ Microsoft Research**

Co-advised intern at Microsoft Research Hrvoje Benko. Project published at peer-reviewed conference and patented, see [C.21, P.10, P.16] below. Summer 2010.

2007 **Peter Brandl, Research Intern (Upper Austria University of Applied Science) @ Mitsubishi Electric Research Labs**

Co-advised intern at Mitsubishi Electric Research Labs with Chia Shen and Clifton Forlines. Summer 2007. Project published at peer-reviewed conference, see [C.16] below.

Hao Jiang, Research Intern (Tsinghua University) @ Mitsubishi Electric Research Labs

Co-advised intern at Mitsubishi Electric Research Labs with Chia Shen and Clifton Forlines. Summer 2007. Project published as two papers at peer-reviewed conferences, see [S.5, C.17] below.

2006 **CHI 2006 Student Design Competition**

An undergraduate student group from my fall 2005 offering of CSC318 at the University of Toronto was selected as one of twelve semi-finalists to attend the CHI 2006 student design competition.

2003 **Clarence Chan, UG**

Supervised undergraduate research project with Prof. Ravin Balakrishnan.

SUPERVISORY & EXAMINATION COMMITTEE MEMBERSHIP

Current Supervisory Committee Membership (Others' Students)

Pif Edwards (PhD supervisory committee, University of Toronto)
Mingming Fan (PhD supervisory committee, University of Toronto)
Aakar Gupta (PhD supervisory committee, University of Toronto)
Rorik Henrikson (PhD supervisory committee, University of Toronto)
Jonathan Lung (PhD supervisory committee, University of Toronto)
Velian Pendev (PhD supervisory committee, University of Toronto)

Previous Supervisory & Examination Roles (Others' Students)

Noah Lockwood (PhD examination committee, University of Toronto, 2016)
Dustin Freeman (PhD supervisory committee, University of Toronto, 2015)
Sean Hayes (PhD supervisory committee, Vanderbilt University, 2015)
Andreas Hollatz (MSc examination committee: external examiner, Queen's University, 2015)
David Holman (PhD examination committee: external examiner, Queen's University, 2014)

Ahmed Arif (PhD examination committee: external examiner, York University, 2013)
Koji Yatani (PhD examination committee, University of Toronto, 2011)
David Dearman (PhD examination committee, University of Toronto, 2011)

REFEREED CONFERENCE FULL PAPERS

[C.57] Glueck, M., Chevalier, F., Brudon, M., Khan, A., Wigdor, D. (2016 – to appear). PhenoStacks: Cross-Sectional Cohort Phenotype Comparison Visualizations. To appear in Visualizations. *IEEE Transactions on Visualization and Computer Graphics*.

[C.56] Annett, M., Lakier, M., Li, M., **Wigdor, D.**, Grossman, T., Fitzmaurice, G. (2016). Michelle Annett, Matthew Lakier, Franklin Li, Daniel Wigdor, Tovi Grossman, and George Fitzmaurice. 2016. The Living Room: Exploring the Haunted and Paranormal to Transform Design and Interaction. In Proceedings of the 2016 ACM Conference on Designing Interactive Systems (DIS '16). ACM, New York, NY, USA, 1328-1340.

[C.55] Deber, J., Araujo, B., Jota, R., Forlines, C., Leigh, D., Sanders, S., **Wigdor, D.** (2016). Hammer Time! A Low-Cost, High Precision, High Accuracy Tool to Measure the Latency of Touchscreen Devices. In Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI '16). ACM, New York, NY, USA, 2857-2868.

[C.54] Hettiarachchi, A., **Wigdor, D.** (2016). Annexing Reality: Enabling Opportunistic Use of Everyday Objects as Tangible Proxies in Augmented Reality. In Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI '16). ACM, New York, NY, USA, 1957-1967.

[C.53] Chadalavada, V., **Wigdor, D.** (2016). Varun Perumal C and Daniel Wigdor. 2016. Foldem: Heterogeneous Object Fabrication via Selective Ablation of Multi-Material Sheets. In Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI '16). ACM, New York, NY, USA, 5765-5775.

[C.52] Xia, H., Araujo, B., Grossman, T., **Wigdor, D.** (2016). Object-Oriented Drawing. In Proceedings of the 2016 CHI Conference on Human Factors in Computing Systems (CHI '16). ACM, New York, NY, USA, 4610-4621. **Best Paper**

[C.51] Araujo, B., Jota, R., Chadalavada, V., Yao, J., Singh, K., **Wigdor, D.** (2016). Snake Charmer: physically enabling virtual objects. *Proceedings of the TEI '16: Tenth International Conference on Tangible, Embedded, and Embodied Interaction* (TEI '16). ACM, New York, NY, USA, 218-226.

[C.50] Annett, M., Grossman, T., **Wigdor, D.**, Fitzmaurice, G. (2015). MoveableMaker: Facilitating the Design, Generation, and Assembly of Moveable Papercraft. *Proceedings of the 28th Annual ACM Symposium on User Interface Software & Technology* (UIST '15). ACM, New York, NY, USA, 565-574.

[C.49] Chadalavada, V., **Wigdor, D.** (2015). Printem: Instant Printed Circuit Boards with Standard Office Printers & Inks. *Proceedings of the 28th Annual ACM Symposium on User Interface Software & Technology* (UIST '15). ACM, New York, NY, USA, 243-251.

[C.48] Glueck, M., Hamilton, P., Chevalier, F., Breslav, S., Khan, A., **Wigdor, D.**, Brudno, M. (2015) PhenoBlocks: Phenotype Comparison Visualizations. *IEEE Transactions on Visualization and Computer Graphics*, vol. 22, no. 1, pp. 101-110, Jan. 31 2016.

[C.47] Jota, R. & **Wigdor, D.** (2015). Palpebrae Superioris: Exploring the design space of eyelid gestures. *Proceedings of the 41st Graphics Interface Conference (GI '15).* Canadian Information Processing Society, Toronto, Ont., Canada, Canada, 273-280.

[C.46] Deber, J., Jota, R., Forlines, C., **Wigdor, D.** (2015). How much Faster is Fast Enough? User Perception of Latency & Latency Improvements in Direct and Indirect Touch. *Proceedings of the 2015 SIGCHI conference on human factors in computing systems* (ACM CHI), 1827-1836. **Best Paper: Honorable Mention**

[C.45] Anderson, F., Grossman, T., **Wigdor, D.**, Fitzmaurice, G. (2015). Supporting Subtlety with Deceptive Devices and Illusory Interactions. *Proceedings of the 2015 SIGCHI conference on human factors in computing systems* (ACM CHI), 1489-1498. **Best Paper: Honorable Mention**

[C.44] Leigh, D., Forlines, C., Jota, R., Sanders, S., **Wigdor, D.** (2014). High-Rate, Low-Latency Multi-Touch sensing with Simultaneous Orthogonal Multiplexing. *Proceedings of the 2014 symposium on User Interface Software and Technology* (ACM UIST), 355-364.

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[P.1] **Wigdor, D.** (2003). *Concurrent data entry for a portable device*. US patent no. 7,721,968. Washington, DC: US Patent and Trademark Office.

WORKSHOPS, TUTORIALS, SPECIAL INTERESTS GROUPS

[W.5] **Wigdor, D.,** Morrison, G. (2010). Designing user interfaces for multi-touch and gesture devices. *Extended Proceedings of ACM CHI 2010 Conference on Human Factors in Computing Systems 2010*, 3193-3196.

[W.4] **Wigdor, D.** (2009). *Sensing and Display Capabilities and the Surface Computing Experiences they Enable*. Tutorial at the 2009 Conference on Interactive Tabletops and Surfaces (ITS 2009).

[W.3] **Wigdor, D.**, Fletcher, J., and Morrison, G. (2009). Designing user interfaces for multi-touch and gesture devices. *Extended Proceedings of ACM CHI 2009 Conference on Human Factors in Computing Systems 2009*, 2755-2758.

[W.2] Shen, C., **Wigdor, D.**, Jiang, H., Horn, M. (2009). SDR: Touch to Discover and Learn. *Multi-Touch and Surface Computing*, a workshop of the *ACM CHI 2009 Conference on Human Factors in Computing Systems 2009.*

[W.1] **Wigdor, D.**, Ivanov, Y., Wren, C.R. (2007). Soda Pop Zombies: Soft Drink Consumption and Motion. *Proceedings of the 2007 Workshop on Massive Datasets* in conjunction with the *Ninth International Conference on Multimodal Interfaces* (ICMI), 8-9.

INVITED PAPERS & ARTICLES

[I.6] **Wigdor, D.**, (2015). The breadth-depth dichotomy: a force for mediocrity. *Proceedings of the 7th ACM SIGCHI Symposium on Engineering Interactive Computing Systems* (EICS '15). ACM, New York, NY, USA, 1. (Invited submission, see [T.77] below).

[I.5] **Wigdor, D.,** Wixon, D. (2011). Natural User Interfaces. *UX Magazine*, April 2011.

[I.4] **Wigdor, D.** (2011). The Breadth-Depth Dichotomy: Opportunities and Crises in Expanding Sensing Capabilities. *Society for Information Display (SID): Information Display*, March 2011.

[I.3] **Wigdor, D.** (2010). Architecting Next-Generation User Interfaces. *Proceedings of the 2010 Working Conference on Advanced Visual Interfaces* (AVI 2010), 16-22. (Invited submission, see [T.37] below).

[I.2] **Wigdor, D.** (2010). Stop the Madness! The Breadth/Depth Dichotomy and How to Address It. Invited article in *Touch Panel* (33), January 2010. Veritas et Visus, Temple, TX, 90-93.

[I.1] Grossman, T., **Wigdor, D.**, Balakrishnan, R. (2005). Multi-Finger Gestural Interactions with 3D Volumetric Displays. Invited submission from ACM UIST. *Proceedings of the 2005 SIGGRAPH conference*, 931. (First published as [C.4] above).

OTHER PUBLICATIONS & THESES

[N.4] **Wigdor, D.** (2008). *The Design of Table Centric, Interactive Spaces*. Ph.D. Thesis, Graduate Department of Computer Science, University of Toronto.

[N.3] Hogan, B., **Wigdor, D.**, Suhonos, M., Josephy, M., Baecker, R. (Eds) (2004). Archived Multimedia Proceedings of Open Source and Free Software: Concepts, Controversies and Solutions. Online.

[N.2] **Wigdor, D.** (2004). *Chording and Tilting for Rapid, Unambiguous Text Entry to Mobile Phones*. M.Sc. Thesis, Graduate Department of Computer Science, University of Toronto.

[N.1] **Wigdor, D.** (2002) *Building Usability Prototypes in VB, Flash, and Dreamweaver.*

INVITED PRESENTATIONS

[T.81] "Achieving Real Virtuality: Closing the Gap Between the Digital and the Physical". Invited talk, Oculus Research. Redmond, WA, USA, June 2016.

[T.80] "Achieving Real Virtuality: Closing the Gap Between the Digital and the Physical". Invited talk, Microsoft Research. Redmond, WA, USA, June 2016.

[T.79] "Achieving Zero-Latency User Interface Technologies. A tale of psychometrics, electrical engineering, input processing, software design, and entrepreneurship.". Invited talk, INRIA Lille, Lille, France, April 2016.

[T.78] "Achieving Zero-Latency User Interface Technologies. A tale of psychometrics, electrical engineering, input processing, software design, and entrepreneurship". Invited talk, HCI seminar, Cornell Tech, New York, NY, USA, February 2016.

[T.77] "The Breadth/Depth Dichotomy: a Force for Mediocrity in Commercial User Interface Technologies". Keynote talk, 7th ACM SIGCHI Symposium on Engineering Interactive Computing Systems, Duisburg, Germany, June, 2015.

[T.76] "Zero Latency Interfaces: From Psychophysics to Operating System Architectures and Sensing Hardware". Invited talk, SIGCHI Paris & Inria, Orsay, France, June 2015.

[T.75] "The Breadth/Depth Dichotomy: a Force for Mediocrity in Commercial User Interface Technologies". Invited talk, *Graphics Interface*, Halifax, NS, Canada, June 2015.

[T.74] "Vertical Software Design & Cross-Device Software Tools". Invited talk, Yahoo! Research, Sunnyvale, CA, USA, August, 2014.

[T.73] "Enabling a Symphony of Devices". Invited talk, Microsoft Research, Redmond, WA, USA, June 2014.

[T.72] "Achieving Perceptually Immediate Direct-Touch Input". Invited talk, Google Research, Mountain View, CA, USA, November 2013.

[T.71] "Achieving Perceptually Immediate Direct-Touch Input". Invited talk, Adobe Research, San Francisco, CA, USA, November 2013.

[T.70] "Achieving Perceptually Immediate Direct-Touch Input". Invited talk, Stanford University, Palo Alto, CA, USA, November 2013.

[T.69] "Achieving Perceptually Immediate Direct-Touch Input". Invited talk, University of California Berkeley, Berkeley, CA, USA, November 2013.

[T.68] "Achieving Perceptually Immediate Direct-Touch Input". Invited talk, University of Southern California, Los Angeles, CA, USA, October 2013.

[T.67] "Achieving Perceptually Immediate Direct-Touch Input". Invited talk, University of Utrecht, Utrecht, Netherlands, October 2013.

[T.66] "Achieving Perceptually Immediate Direct-Touch Input". Invited talk, University College London, London, UK, October 2013.

[T.65] "Designing for Interfaces Using Touch Input". Invited talk, Synopsys Inc., Sunnyvale, CA, USA, July 2013.

[T.64] "Zero-Latency User Interfaces: Why we Care, How We're Building Them". Invited talk, Microsoft Research Cambridge, Cambridge, UK, April 2013.

[T.63] "Busting the Myth: Natural Input Requires Learning". Invited talk with Kay Hofmeester, South by Southwest Interactive, Austin, TX, USA, March 2012.

[T.62] "Architecting an Interface for the Natural User". Invited talk, Quanta Research Cambridge, Cambridge, MA, USA, December 2011.

[T.61] "Architecting an Interface for the Natural User". Invited talk, *HCI Seminar Series 2011/2012*, Computer Science & Artificial Intelligence Laboratory, MIT, Cambridge, MA, USA. December 2011.

[T.60] "Architecting an Interface for the Natural User". Invited talk, University of Manitoba, Winnipeg, MB, Canada November 2011.

[T.59] "Brave GUI World: Creating Graphical User Interfaces to Facilitate Natural User Interaction". Invited Speaker, World Usability Day, Redmond, WA, USA November 2011.

[T.58] "Brave NUI World". Invited speaker, UX Book Club, Paris, France, September 2011.

[T.57] "From the movies to your living room: the secrets of Microsoft's gestural user interfaces". Keynote speaker, Summer Program for High School Teachers, University of Toronto, Toronto, ON, Canada, July 2011.

[T.56] "Information & Communication Technology in Canada". Invited panelist, Mitacs Event, Toronto, ON, Canada, July 2011.

[T.55] "Designing Natural: The Secrets of Microsoft's Natural User Interfaces". Invited talk, *Toronto Region – Computer Human Interaction*, Toronto, ON, Canada, June 2011.

[T.54] "End-User Development for Gestural Interface Design". Invited panelist, Third International Symposium on End-User Development (IS-EUD), Torre Canne, Italy, June 2011.

[T.53] "Architecting Next-Generation User-Interfaces". Invited talk, University of Grenoble, Grenoble, France, June 2011.

[T.52] "Architecting Microsoft's Natural User Interfaces". Invited talk, MDA Corporation, Brampton, ON, Canada, May 2011.

[T.51] "The Lowest-Common Denominator Looms Ahead". Invited Talk, Future of Touch & Interactivity Conference. Los Angeles, CA, Canada, May 2011.

[T.50] "The Breadth-Depth Dichotomy: Opportunities and Crises in Expanding Sensing Capabilities". Invited Talk, SID Display Week 2011, Los Angeles, CA, USA, May 2011.

[T.49] "Opportunities for Industry-Academia Collaboration in ICT Sector". Panel moderator, Mitacs Event, Toronto, ON, Canada, April 2011.

[T.48] "Challenges and Opportunities in the HCI of touch and multi-touch". Invited talk, Egan Visual, Toronto, ON, Canada, April 2011.

[T.47] "Enabling High-Bandwidth Human-Computer Interaction". Invited talk, Google Inc., Waterloo, ON, Canada, February 2011.

[T.46] "Architecting Next Generation User Interfaces". Invited Talk, DUB Seminar, University of Washington, Seattle, WA, USA, November 2010.

[T.45] "Architecting Next Generation User Interfaces". Invited Talk, Department of Computer Science, Queens University, Kingston, ON, Canada, November 2010.

[T.44] "Architecting Next Generation User Interfaces". Invited talk, Smart Technologies, Calgary, AB, Canada, October 2010.

[T.43] "Architecting Next Generation User Interfaces". Invited talk, Department of Computer Science, University of Calgary, Calgary, AB, Canada, October 2010.

[T.42] "Architecting Next Generation User Interfaces". Invited talk, Department of Computer Science, University of British Columbia, Vancouver, BC, October 2010.

[T.41] "Designing for new User Interface Technologies". Invited talk, Department of Computer Science, University of Waterloo, Waterloo, ON, Canada, October 2010

[T.40] "Enabling the Future of Diverse User Interfaces". Keynote, *16th Annual Executive Forum* of the Information Technology Association of Canada. Ottawa, ON, Canada, October 2010.

[T.39] "Designing Natural User Interfaces". Keynote, *HCSNet Workshop on Natural User Interfaces*. Melbourne, Australia, June 2010.

[T.38] "Architecting Next-Generation User Interfaces". Invited talk, School of Information Technology & Electrical Engineering, University of Queensland. Brisbane, Australia, June 2010.

[T.37] "Architecting Next-Generation User Interfaces". Plenary talk, *2010 International Working Conference on Advanced Visual Interfaces* (AVI 2010). Rome, Italy, May 2010.

[T.36] "Clothing the Emperor: Creating Authentic User Experiences for New Interactive Displays". Invited talk. *Interactive Displays 2010*. San Jose, CA, USA, April 2010.

[T.35] "Architecting Next-Generation User Interfaces". Invited talk, Department of Computer Science, University of Toronto, Toronto, ON, Canada, March 2010.

[T.34] "WeSearch: Supporting Collaborative Search and Sensemaking on a Tabletop Display". Paper presentation, *The 2010 ACM Conference on Computer Supported Cooperative Work* (CSCW 2010). Savannah, GA, USA, February 2010.

[T.33] "The Future of HCI". Guest lecture. *IMT 540a: Design Methods for Interaction and System.* Information School, University of Washington, Seattle, WA, USA, December 2009.

[T.32] "Tabletop Computing: a History". Guest lecture. *INFO 498b: Input & Interaction.* Information School, University of Washington, Seattle, WA, USA, May 2009.

[T.31] "The WeSpace: The Design, Development, and Deployment of a Walk-Up and Share Multi-Surface Visual Collaboration System". Paper presentation, *ACM SIGCHI Conference on Human Factors in Computing Systems*, Boston, MA, USA, April 2009.

[T.30] "Designing User Interfaces for Multi-Touch and Gesture Devices". Special Interest Group, *ACM SIGCHI Conference on Human Factors in Computing Systems*, Boston, MA, USA, April 2009.

[T.29] "The WeSpace: The Design, Development, and Deployment of a Walk-Up and Share Multi-Surface Visual Collaboration System". Invited talk, University of Washington, Seattle, WA, USA, March 2009.

[T.28] "Natural User Interfaces: theory, development, and history". Guest lecture, School of Art, Division of Design, University of Washington, Seattle, WA, USA, February 2009.

[T.27] "MultiTouch Technologies: applications, methods, and practices". Guest lecture, *CSE 510: Advanced Topics in Human Computer Interaction*. Department of Computer Science and Engineering, University of Washington, Seattle, WA, USA, February 2009.

[T.26] "No Touch Left Behind". Guest presentation, *Expression Newsletter*, January 2009. http://www.microsoft.com/expression/news-press/newsletter/2009-01/default.aspx?autostart=true

[T.25] "Critical Thinking and Novel Technologies". Guest lecture, *IMT 540a: Design Methods for Interaction and Systems*. Information School, University of Washington, Seattle, WA, USA, November 2008.

[T.24] "Proxemics and Territoriality". Guest presentation, *Expression Newsletter*, September 2008. http://www.microsoft.com/expression/news-press/newsletter/2008-09/default.aspx

[T.23] "Tabletop Interaction". Guest lecture, *INFO 498: Input & Interaction.* Information School, University of Washington, Seattle, WA, USA, May 2008.

[T.22] "Interaction Principles". Guest Lecture, *CS171: Visualization.* School of Engineering and Applied Science, Harvard University, Cambridge, MA, USA, March 2008.

[T.21] "Towards usable and useful multi-touch systems". Invited talk, College of Computer and Information Science, Northeastern University, Boston, MA, USA, February 2008.

[T.20] "Towards usable and useful multi-touch systems". Invited talk, Department of Systems Design Engineering, University of Waterloo, Waterloo, ON, Canada, December 2007.

[T.19] "Towards usable and useful multi-touch systems". Invited talk, *HCI Seminar Series, Fall 2007*, Massachusetts Institute of Technology, Cambridge, MA, USA, November 2007.

[T.18] "Going Deeper: a Taxonomy of 3D on the Tabletop". Paper presentation, *The Second IEEE International Workshop on Horizontal Interactive Human-Computer Systems,* Newport, RI, USA, October 2007.

[T.17] "Living with a Tabletop: Analysis and Observations of Long Term Office Use of a Multi-Touch Table". Paper presentation, *The Second IEEE International Workshop on Horizontal Interactive Human-Computer System*, Newport, RI, USA, October 2007.

[T.16] "Far & Away: Remote and Distributed Tabletop Collaboration". Session chair, *The Second IEEE International Workshop on Horizontal Interactive Human-Computer Systems*, Newport, RI, USA, October 2007.

[T.15] "LucidTouch: A See-Through Mobile Device". Paper presentation, *ACM UIST Symposium on User Interface Software and Technology*, Newport, RI, USA, October 2007.

[T.14] "Efficient User Interfaces". Session chair, *ACM UIST Symposium on User Interface Software and Technology*, Newport, RI, USA, October 2007.

[T.13] "Perception of Elementary Graphical Elements in Tabletop and Multi-Surface Environments". Paper presentation, *ACM SIGCHI Conference on Human Factors in Computing Systems*, San Jose, CA, USA, April 2007.

[T.12] "Under the Table Interaction". Paper presentation, *ACM UIST 2006 Symposium on User Interface Software and Technology*, Montreux, Switzerland, October 2006.

[T.11] "Multi Surface Environments". Invited talk, *Department of Computer Science, University of Tokyo*, Tokyo, Japan, July 2006.

[T.10] "Multi Surface Environments". Invited talk, *Research Center for Advanced Science and Technology (RCAST)*, Tokyo, Japan, July 2006.

[T.9] "Table-Centric Interactive Spaces for Real-Time Collaboration: Solutions, Evaluation, and Application Scenarios". Paper presentation, *Conference on Collaborative Technologies*, Tsukuba, Japan, July 2006.

[T.8] "Effects of Display Position and Control Space Orientation on User Preference and Performance". Paper presentation, *ACM SIGCHI Conference on Human Factors in Computing Systems*, Montréal, QC, Canada, April 2006.

[T.7] "Empirical Investigation into the Effect of Orientation on Text Readability in Tabletop Displays". Paper presentation, *ECSCW 2005 9th European Conference on Computer-Supported Cooperative Work*, Paris, France, September 2005.

[T.6] "Chording and Tilting for Rapid, Unambiguous Text Entry to Mobile Phones". Invited talk, *Mitsubishi Electric Research Labs*, Cambridge, MA, USA, May 2005.

[T.5] "Multi-Finger Gestural Interactions with 3D Volumetric Displays". Paper presentation, *ACM Symposium on User Interface Software and Technology*, Santa Fe, NM, USA, October 2004.

[T.4] "Comparison of Consecutive and Concurrent Input Text Entry Techniques for Mobile Phones". Paper presentation, *ACM SIGCHI Conference on Human Factors in Computing Systems*, Vienna, Austria, April 2004.

[T.3] "TiltText: Using tilt for text input to mobile phones". Paper presentation, *ACM Symposium on User Interface Software and Technology*, Vancouver, BC, Canada, November 2003.

[T.2] "Hunter gatherer: within-web-page collection making". Live demonstration, *ACM SIGCHI Conference on Human Factors in Computing Systems*, Minneapolis, MN, USA, April 2002.

[T.1] "The Enigma Machine and the Second World War". Invited talk, *Computing Insights, University of Toronto*, Toronto, ON, Canada, July 2002.

SERVICE

Juries & Grant Panels

NSF Funding Panel (2010, 2011, 2013) *National Science Foundation, USA*
Bill Buxton Award (2013) Top Canadian HCI PhD Thesis
College of Reviewers (2013) Mitacs (Canadian granting organization)
ACM CHI: Student Research Competition Judge (2010) *Human Factors in Computing Systems*

Program Committees: Chairing

ACM CHI: Program Committee co-Chair (2017) *Human Factors in Computing Systems*
ACM UIST: Program Committee co-Chair (2014) *User Interface Software and Technology*
ACM ITS: Program Committee co-Chair (2010, 2011) *Interactive Tabletops and Surfaces*

Program Committees: Membership

ACM CHI: Program Committee Associate Chair (2010, 2011, 2012, 2013, 2014) *Human Factors in Computing Systems*
ACM UIST: Program Committee member (2010, 2012, 2015) *User Interface Software and Technology*
ACM CSCW: Program Committee member (2013) *Computer Supported Cooperative Work*
DIS: Program Committee Associate Chair (2012) *Designing Interactive Systems*
GI: Program Committee member (2011) *Graphics Interfaces*
Mobile HCI: Program Committee member (2010) *HCI with Mobile Devices & Services*
ACM IUI: Program Committee member (2009) *Intelligent User Interfaces*
ACM CHI: Workshops Committee member (2010) *Human Factors in Computing Systems*
AVI PPD Workshop: Program Committee member (2008,2010) *Advanced Visual Interfaces: Touch & Multi-Display*
IFIP Interact: Program Committee member (2009) *Human Computer Interaction*
ACM ITS: Program Committee member (2007, 2008) *Interactive Tabletops and Surfaces*
CollabTech: Program Committee member (2008) *Conference on Collaboration Technologies*

Organizing Committees: Content Management Roles

ACM CHI: People's Choice Best Talks Award Founding Chair (2014) *Human Factors in Computing Systems*
ACM CHI: Best of CHI co-Chair (2014) *Human Factors in Computing Systems*
ACM CHI: alt.chi co-Chair (2010, 2011) *Human Factors in Computing Systems*
ACM SIGGRAPH: e-Tech Exhibition Curator (2009) *Computer Graphics & Interactive Techniques*
ACM UIST: Demonstrations co-Chair (2007) *User Interface Software & Technology*

Invited Reviews: Conferences

ACM CHI: Papers & Notes (2004, 2005, 2006, 2007, 2008, 2009, 2015, 2016) *Human Factors in Computing Systems*
IEEE 3DUI: Papers (2016) *3D User Interfaces*
ACM SIGGRAPH: Papers (2008, 2012, 2013, 2015) *Computer Graphics & Interactive Techniques*
ACM UIST: Papers & Notes (2004, 2005, 2006, 2007, 2008, 2009, 2011, 2013) *User Interface Software & Technology*
UBICOMP: Papers (2009, 2011) *Ubiquitous Computing*
ACM CSCW: Papers (2010) Computer Supported Cooperative Work
ACM SUI: Papers (2013) Symposium on Spatial User Interfaces
ACM CHI: Student Design Competition (2006, 2007, 2008, 2009) *Human Factors in Computing Systems*
ACM CHI: Student Research Competition Judge (2010) *Human Factors in Computing Systems*
ACM CHI: Works in Progress (2009) *Human Factors in Computing Systems*
ACM CHI: Video Proceedings (2009) Human Factors in Computing Systems
ACM EICS: Papers (2013) Engineering Interactive Computing Systems
ACM UIST: Posters Committee (2006) User Interface Software & Technology
IEEE ISWC: Papers (2005) *Wearable Computers*
GI: Papers (2008, 2013) *Graphics Interface*
TEI: Papers (2010) Tangible and Embedded Interaction

Invited Reviews: Journals

ToCHI (2012, 2013, 2014, 2015) ACM Transactions on Computer-Human Interaction

CAG (2013) Computers & Graphics
IJHCS (2006, 2007, 2008, 2009, 2010, 2011, 2014) International Journal of Human-Computer Studies
IEEE CG&A (2006) IEEE Computer Graphics and Applications

Invited Reviews: Grants & Internal Reviews

ISF (2014) Israel Science Foundation
FWF (2013) Austrian Science Fund
INRIA Project Evaluation (2013) French Research Institution
FNRA Grants (2013) French National Research Agency
NSERC Discovery Grants (2012) National Science and Engineering Research Council

Conference Organization

ACM UIST: Sponsorships Chair (2011, 2012, 2013, 2016) *User Interface Software & Technology*
ACM ITS: Proceedings Chair (2008, 2009) *Interactive Tabletops & Surfaces*
ACM ITS: Publicity Chair (2007) Interactive Tabletops & Surfaces
ACM ITS: Student Volunteers Chair (2007) *Interactive Tabletops & Surfaces*
IEEE ISWC: Sponsorship & Exhibits Chair (2007) *Wearable Computers*

APPENDIX: EXPERT WORK HISTORY (DISCLOSED)

Since becoming an assistant professor in 2011, I have assisted numerous clients in intellectual property litigation. I have prepared declarations and expert reports in support of various trials and *inter partes* reviews. I have been deposed (four times) and testified in court (three times) in the US and UK.

Since 2016

Testifying Expert Witness for Winston & Strawn, United States International Trade Commission

For Comcast Corporation and Comcast Cable Communications LLC with Winston & Strawn, *In the Matter of Certain Digital Video Receivers and Hardware and Software Components Thereof,* inv. no. *337-TA-1001*. Patent numbers 8,006,263, 8,578,413, and 8,046,801. Ongoing.

- Expert reports on both invalidity and non-infringement.
- Deposed.

Testifying Expert Witness for Wolf Greenfield, U.S. Patent and Trademark Office

For Chestnut Hill Sound Inc. with Wolf Greenfield, in *IPR2015-01465*. Prepared declaration regarding the validity of U.S. patent # 8,725,063 (Multi-mode media device using metadata to access media content). Ongoing.

- Prepared declaration in support of IPR response.
- Deposed.

Since 2015

Testifying Expert Witness for Bunsow de Mory, Eastern District of Texas

For Ericsson Inc. with Bunsow De Mory Smitth & Allison LLP, in *Ericsson Inc. et al. v. Apple Inc., no 2:15-cv-289 (E.D. Texas)*. Caste settled.

Testifying Expert Witness for Winston & Strawn, United States International Trade Commission

For Ericsson Inc. with Winston & Strawn LLP, in *the Matter of Certain Electronic Devices, Including Wireless Communication Devices, Computers, Tablet Computers, Digital Media Players, and Cameras*, No. 337-TA-952. Caste settled.

Testifying Expert Witness for Quinn Emanuel, Northern District of California

For BlackBerry Ltd. with Quinn Emanuel Urquhart & Sulivan, LLP, in *BlackBerry Limited v. Typo Products LLC and Show Media LLC,* No. 3:14-cv-00023 WHO (N.D. Cal.) regarding patent number 7,629,964, and 8,162,552. Case settled.

- Expert reports on both infringement and validity.

Since 2014

Testifying Expert Witness for Oblon, Spivak, McClelland, Maier, and Neustadt

For BlackBerry Ltd. with Oblon, Spivak, McClelland, Maier & Neustadt LLP, in *BlackBerry Corp. v. Cypress Semiconductor* and related *inter partes* review regarding patent numbers 8,059,015, 8,004,497, and 8,519,973. Case settled.

- Prepared declaration in support of IPR.

Testifying Expert Witness for Quinn Emanuel, Northern District of California

For Aylus Networks, Inc. with Quinn Emanuel Urquhart & Sulivan, LLP, in *Apple Inc. v. Aylus Networks, Inc* (N.D. Cal.) regarding patent number RE44,412. Ongoing.

- Prepared declaration in support of claim construction brief.

Consulting Expert Witness for Williams & Connolly

For Google Inc. with Williams & Connolly LLP. In *Google Inc. v. Rockstar Consortium US LP et al.*, Case No. 4:13-cv-05933-CW (N.D. Cal.) and related *inter partes* review. Case settled.

- Prepared declaration in support of inter partes review.

Since 2013 **Testifying Expert Witness for Quinn Emanuel, Southern District of Florida**
For Motorola Mobility with Quinn Emanuel in *Motorola Mobility, Inc. v. Apple Inc.,* No. 1:12-cv-20271-RNS (S.D. Fla). Case settled.

- Prepared expert report on validity.

Testifying Expert Witness for Quinn Emanuel, Northern District of California
For Samsung with Quinn Emanuel Urquhart & Sullivan, LLP, in *Apple Inc. v. Samsung Electronics Co., Ltd., et al.*, No. 12-cv-00630-LHK (N.D. Cal.) regarding patent number 8,074,172 (*Method, system, and graphical user interface for providing word recommendations*).

- Prepared expert reports on invalidity and non-infringement.
- Deposed.
- Testified at trial.

Testifying Expert Witness for Hogan Lovells, High Court of Justice (Great Britain)
For HTC with Hogan Lovells. In *Nokia Corporation v. HTC Corporation et al.* Case settled.

Since 2012 **Testifying Expert Witness for Keker & Van Nest, Southern District of Florida**
For HTC with Keker & Van Nest, LLP, in *Motorola Mobility, Inc. v. Apple Inc.* U.S. District Court for the Southern District of Florida, Case No. 1:12-cv-20271-RNS (S.D. Flo). Case settled.

Testifying Expert Witness for Quinn Emanuel, United States International Trade Commission
For HTC with Quinn Emanuel Urquhart & Sullivan, LLP in enforcement action in the *Matter of Certain Portable Electronic Devices and Related Software*, Inv. No. 337-TA-710 (ITC). Case settled.

- Prepared expert reports on both invalidity and noninfringement.

Testifying Expert Witness for Powell Gilbert, High Court of Justice (Great Britain)
For HTC with Powell Gilbert LLP in patent litigation case in *Apple Inc. v. HTC Corp.*, Claim No. HC11 C03080, High Court of Justice, Chancery Division, Patents Court, Gr.Brit. Regarding EP (UK) patent number 2,098,948 (*Touch Event Model*).

- Prepared expert reports on invalidity and non-infringement.
- Not deposed per UK procedures for expert witnesses.
- Testified at trial.

Consulting Expert Witness for Quinn Emanuel, Northern District of California
For Samsung with Quinn Emanuel Urquhart & Sullivan, LLP in *Apple Inc. v. Samsung Electronics Co.*, No. 11-cv-01846 (N.D. Cal.). Consulted on case. Case concluded.

Since 2011 **Consulting Expert Witness for Perkins Coie, Delaware**
For HTC with Perkins Coie in *Apple Inc. v. HTC* No. 1:2010-cv-00167 (D. Del.). Case settled.

Testifying Expert Witness for Quinn Emanuel, United States International Trade Commission
For HTC with Quinn Emanuel Urquhart & Sullivan, LLP, in *the Matter of Certain Portable Electronic Devices and Related Software*, Inv. No. 337-TA-797 (ITC) regarding patent number 7,469,381 (*List scrolling and document translation, scaling, and rotation on a touch-screen display*).

- Prepared expert reports on invalidity and non-infringement.
- Deposed.
- Testified at trial.