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.

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Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

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Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS
Sync your system to PACER to automate legal marketing.