

# Daniel Vogel, Curriculum Vitae

dvogel@uwaterloo.ca / www.nonsequitoria.com  
200 University Avenue West, Waterloo, ON, Canada N2L 3G1  
+1 (519) 888-4567 ext. 33561

## Associate Professor, University of Waterloo

Human-Computer Interaction Lab  
Cheriton School of Computer Science

## Degrees and Fellowships

### Banting Postdoctoral Fellow, University of Waterloo, 2011 - 2013

Cheriton School of Computer Science

### PhD Computer Science, University of Toronto, 2005 - 2010

Human Computer Interaction, "Direct Pen Input and Hand Occlusion"

★ BILL BUXTON DISSERTATION AWARD

### MSc Computer Science, University of Toronto, 2003 - 2005

Human Computer Interaction, "Interactive Public Ambient Displays"

### BFA Intermedia, Emily Carr University of Art and Design, 1993 - 1996

specializing in 3-D computer animation, interactive media, installation art, and printmaking

### BA Computer Science and Visual Arts, Western University, 1989 - 1993

★ DEAN'S HONOUR LIST

## Professional Experience

### Associate Professor, University of Waterloo, 2017 -

Human-Computer Interaction Lab  
Cheriton School of Computer Science

past

### Assistant Professor, University of Waterloo, 2013 - 2017

Human-Computer Interaction Lab  
Cheriton School of Computer Science

### Banting Postdoctoral Fellow, University of Waterloo, 2011 - 2013

Computer Graphics Lab and Human-Computer Interaction Lab  
Cheriton School of Computer Science

### Visiting Researcher, Inria Lille, France, 2010

Mint Research Team

### Adjunct Professor, Mount Allison University, 2008, 2009, 2010 - 2012

Department of Mathematics and Computer Science

**Freelance Consultant, 2002 – 2013**

Information Architecture, Graphic Design, Usability Recommendations  
clients include Sapient, The Royal Bank Financial Group, Bell Media

**Organic, Toronto, May – Oct 2002**

Senior Information Architect (contract)

**Cyberplex, Toronto, Sep 1999 – May 2002**

Department Manager and Senior Information Architect

**Bratch Innovation, Toronto, Jan 1999 – Aug 1999**

Creative Director

**Referentia, Honolulu, 1998 – 2000**

3-D Computer Animator (contract)

**Computer Visualizations, Honolulu, Oct 1996 – Feb 1997, May 1994 – Aug 1994**

3-D Computer Animator

## Research Funding

**NSERC Discovery Grant Accelerator, May 2018 – May 2021**

\$120,000 over 3 years, “Human-Computer Interaction for Spatial Augmented Reality”  
(principal investigator)

**NSERC Discovery Grant, May 2018 – May 2023**

\$180,000 over 5 years, “Human-Computer Interaction for Spatial Augmented Reality”  
(principal investigator)

**Google Faculty Research Award, Mar 2018**

USD\$40,400, “Android Everywhere: HCI for a Smartphone Controlled Spatial Augmented Reality”  
(principal investigator)

**Huawei Industry Sponsored Research, Jan 2018 – Jan 2019**

\$125,000, “Interaction Techniques for Intention-Based User Interface”  
(principal investigator)

**Ontario Early Researcher Award, May 2017 – Apr 2022**

\$150,000, “Human-Computer Interaction for Fully Interactive Physio-digital Spaces”  
(principal investigator)

**Canada Foundation for Innovation (CFI) Innovation Fund, 2015**

\$616,306, part of \$1.9 million “Facility for Fully Interactive Physio-digital Spaces”  
(principal investigator, with 4 co-investigators)

**Ontario Research Fund (ORF) – Large Infrastructure Fund, 2015**

\$616,306, part of \$1.9 million “Facility for Fully Interactive Physio-digital Spaces”  
(principal investigator, with 4 co-investigators)

**NSERC Engage Grant, Jan – Aug 2015**

\$25,000, Tactual Labs, “Touch Dragging Latency Compensation with High Frequency Input”  
(principal investigator)

**MITACS Globallink Research Award – Inria, Jun – Sep 2015**

\$4,629 for Alix Goguy’s 4 month Phd internship at University of Waterloo for research on “Human Performance of Finger Identification for Multitouch Input”  
(principal investigator with Géry Casiez)

### **Chronic Disease Prevention Initiative (CDPI) Seed Funding, 2015**

\$10,000, "COMPUterized Sideline Screening (COMPASS) of neuromotor performance to prevent Chronic Effects of Traumatic Brain Injury (TBI)"  
(co-investigator with 7 others from Engineering and Kinesiology)

### **NSERC Engage Grant, Oct 2013 – Mar 2014**

\$24,544, Thalmic Labs, "Gestural Two-Dimensional Pointing and Target Selection using Inertial Arm Motion and Muscle Activity"  
(principal investigator)

### **NSERC Discovery Grant, May 2013 – May 2018**

\$100,000 over 5 years, "Subtle Whole-body Interaction"  
(principal investigator)

### **Banting Postdoctoral Fellowship, Jul 2011 – May 2013**

\$140,000 salary and \$50,000 start-up funds over 24 months for "The Design and Evaluation of an Interactive Public Ambient Display in an Art Gallery Context: Understanding Aesthetic Interaction Experiences"

### **NSERC Postdoctoral Fellowship, 2011 (declined to accept Banting PDF)**

\$80,000 over 24 months based on research potential

### **Travel Bursary, Mount Allison University, 2010**

\$1,500 bursary for conference travel to Computation Aesthetics 2010

### **NRC Industrial Research Assistance Program (IRAP), 2008**

\$4,300 grant for research consulting: "HCI Research and Novel Input Technologies"

## **Awards and Honours**

### **Best Paper Honourable Mention (top 5%), ACM CHI, 2018**

for C44 Multiray (with Fabrice Matulici)

### **Best Paper Honourable Mention (top 5%), ACM DIS, 2017**

for C39 Guided Selfies using Models of Portrait Aesthetics (with Qifan Li)

### **Best Paper Award, ACM IHM, 2014**

for C21 Adoiraccourcix (with 4 other authors)

### **Best Paper Honourable Mention (top 5%), ACM CHI, 2014**

for C18 Crossing-Based Selection with Direct Touch Input (with Yuexing Luo)

### **GRAND Young Network Investigator Award, 2013**

\$5,000

### **Bill Buxton Dissertation Award, Cdn Human Computer Communications Society, 2011**

best Canadian doctoral dissertation in Human-Computer Interaction (co-recipient)

### **Best Paper Award (top 1%), ACM CHI, 2010**

for C9 Occlusion-Aware Interfaces (with Ravin Balakrishnan)

### **Best Paper Honourable Mention (top 5%), ACM CHI, 2008**

for C7 The Effect of Spring Stiffness (with Géry Casiez)

### **Best Paper Award (top 1%), ACM CHI, 2007**

for C4 Shift (with Patrick Baudisch)

# Scholarships

## NSERC Canada Graduate Scholarship (CGSD3), 2005 – 2008

\$105,000 over 36 months based on research potential and academic merit

## NSERC Postgraduate Scholarship, Masters (PGSM), 2004

\$17,300 scholarship based on research potential and academic merit

## Ontario Graduate Scholarship, 2004 (*declined to accept NSERC PGSM*), 2005 (*declined to accept NSERC CGSD3*)

\$15,000 scholarship based on academic merit

## University of Toronto Wolfond Fellowship, 2003

\$7,900 scholarship based on academic merit

## Senior Student Artist Grant, British Columbia Cultural Services, 1995

\$2,250 juried award for senior art students

# Publications

47 conference proceedings, 4 journal articles

2700+ citations, h-index 21 (Google Scholar)

900+ citations (ACM Digital Library)

## Peer-reviewed Conference Proceedings

**Note about conference papers:** in Human-Computer Interaction, like many fields of experimental Computer Science, conference proceedings are the preferred publication venue since they are timelier and typically have greatest impact. Top tier conferences are very selective with rigorous multi-stage review of full manuscripts creating high quality proceedings. See Meyer et al. (2009) for more background regarding conference proceedings in experimental Computer Science.

**Note about paper length:** all conference proceeding papers are reviewed using the same process and criteria, regardless of page length. All papers in this section are considered full publications, not semi-archival papers associated with workshops, posters, demos, etc.

**Note about venues:** CHI (the ACM Conference on Human Factors in Computing Systems) and UIST (the ACM symposium on User interface software and technology) are both recognized as very top tier HCI conferences (Google Scholar and Microsoft Academic Search both rank them as #1 and #3). The average acceptance rate for CHI is 23% and UIST 21%.

- C47 **Hassan Khan**, Urs Hengartner, Daniel Vogel (2018). Augmented Reality-based Mimicry Attacks on Behaviour-Based Smartphone Authentication. *Proc. of MobiSys'18, the 16th ACM International Conference on Mobile Systems, Applications, and Services*. 12 p.
  - C46 **Zhe Liu**, Daniel Vogel, James R. Wallace (2018). Applying the Cumulative Fatigue Model to Interaction on Large, Multi-Touch Displays. *In Proceedings of the 7th ACM International Symposium on Pervasive Displays (PerDis '18)*, 9 p.
  - C45 **Hassan Khan**, Urs Hengartner, Daniel Vogel (2018). Evaluating Attack and Defense Strategies for Smartphone PIN Shoulder Surfing. *Proc. of CHI'18, the 36th Conference on Human Factors in Computing Systems*. 9 p.
  - C44 **Fabrice Matulic**, Daniel Vogel (2018). Multiray: Multi-Finger Raycasting for Large Displays. *Proc. of CHI'18, the 36th Conference on Human Factors in Computing Systems*. 9 p.
- ★ BEST PAPER HONOURABLE MENTION

- C43 **Alix Goguey**, Géry Casiez, Daniel Vogel, Carl Gutwin (2018). Characterizing Finger Pitch and Roll Orientation During Atomic Touch Actions. *Proc. of CHI'18, the 36th Conference on Human Factors in Computing Systems*. 10 p.
- C42 **Joshua Jung**, Daniel Vogel (2018). Methods for Intentional Encoding of High Capacity Human-Designable Visual Markers. *Proc. of CHI'18, the 36th Conference on Human Factors in Computing Systems*. 9 p.
- C41 Teddy Seyed, Xing-Dong Yang, Daniel Vogel (2017). A Modular Smartphone for Lending. *Proc. of UIST'17, the 30th ACM Symposium on User Interface Software and Technology*. p. 205-215.
- C40 **Fabrice Matulic**, Daniel Vogel, Raimund Dachsel (2017). Hand Contact Shape Recognition for Posture-Based Tabletop Widgets and Interaction. *Proc. of ISS'17, ACM International Conference on Interactive Surfaces and Spaces*. p. 3-11.
- C39 **Qifan Li**, Daniel Vogel (2017). Guided Selfies using Models of Portrait Aesthetics. *Proc. of DIS'17, the ACM SIGCHI Conference on Designing Interactive Systems*. p. 179-190.
- ★ **BEST PAPER HONOURABLE MENTION**
- C38 **Hemant Surale**, **Fabrice Matulic**, Daniel Vogel (2017). Experimental Analysis of Mode Switching Techniques in Touch-based User Interfaces. *Proc. of CHI'17, the 35th Conference on Human Factors in Computing Systems*. p. 3267-3280.
- C37 Jun Gong, Lang Li, Daniel Vogel, Xing-Dong Yang (2017). Cito: An Actuated Smartwatch for Extended Interactions. *Proc. of CHI'17, the 35th Conference on Human Factors in Computing Systems*. p. 5331-5345.
- C36 Pei-Yu Chi, Mira Dontcheva, Wilmot Li, Daniel Vogel, Björn Hartmann (2016). Authoring Illustrations of Human Movements by Iterative Physical Demonstration. *Proc. of UIST'16, the 29th ACM Symposium on User Interface Software and Technology*. p. 809-820.
- C35 **Mathieu Nancel**, Daniel Vogel, Bruno De Araujo, Ricardo Jota, Géry Casiez (2016). Next-Point Prediction Metrics for Perceived Spatial Errors. *Proc. of UIST'16, the 29th ACM Symposium on User Interface Software and Technology*. p. 271-285.
- C34 Hassan Khan, Urs Hengartner, Daniel Vogel (2016). Targeted Mimicry Attacks on Touch Input Based Implicit Authentication Schemes. *Proc. of MobiSys'16, the 14th ACM International Conference on Mobile Systems, Applications, and Services*. p. 387-398.
- C33 **William Saunders**, Daniel Vogel (2016). Tap-Kick-Click: Foot Interaction for a Standing Desk. *Proc. of DIS'16, the ACM SIGCHI Conference on Designing Interactive Systems*. p. 323-333.
- C32 **Jingjie Zheng**, Daniel Vogel (2016). Finger-Aware Shortcuts. *Proc. of CHI'16, the 34th Conference on Human Factors in Computing Systems*. p. 4274-4285.
- C31 **Teddy Seyed**, Xing-Dong Yang, Daniel Vogel (2016). Doppio: A Reconfigurable Dual-Face Smartwatch for Tangible Interaction. *Proc. of CHI'16, the 34th Conference on Human Factors in Computing Systems*. p. 4675-4686.
- C30 **Alix Goguey**, **Mathieu Nancel**, Géry Casiez, Daniel Vogel (2016). The Performance and Preference of Different Fingers and Chords for Pointing, Dragging, and Object Transformation. *Proc. of CHI'16, the 34th Conference on Human Factors in Computing Systems*. p. 4250-4261.
- C29 **Mingyu Liu**, **Mathieu Nancel**, Daniel Vogel (2015). Gunslinger: Subtle Arms-down Mid-air Interaction. *Proc. of UIST'15, the 28th ACM Symposium on User Interface Software and Technology*. p. 63-71.
- C28 **Yuexing Luo**, Daniel Vogel (2015). Pin-and-Cross: A Unimanual Multitouch Technique Combining Static Touches with Crossing Selection. *Proc. of UIST'15, the 28th ACM Symposium on User Interface Software and Technology*. p. 323-324.

- C27 Hassan Khan, Urs Hengartner, Daniel Vogel (2015). Usability and Security Perceptions of Implicit Authentication: Convenient, Secure, Sometimes Annoying. *Proc. of SOUPS'15, the 11th Symposium on Usable Privacy and Security*. p. 225-239.
- C26 William Saunders, Daniel Vogel (2015). The Performance of Indirect Foot Pointing using Discrete Taps and Kicks While Standing. *Proc. of Graphics Interface 2015*. p. 265-272.
- C25 Faizan Haque, Mathieu Nancel, Daniel Vogel (2015). Myopoint: Pointing and Clicking Using Forearm Mounted Electromyography and Inertial Motion Sensors. *Proc. of CHI'15, the 33rd Conference on Human Factors in Computing Systems*. p. 3653-3656.
- C24 Jaime Ruiz, Daniel Vogel (2015). Soft-Constraints to Reduce Legacy and Performance Bias to Elicit Whole-body Gestures with Low Arm Fatigue. *Proc. of CHI'15, the 33rd Conference on Human Factors in Computing Systems*. p. 3347-3350.
- C23 Mathieu Nancel, Daniel Vogel, Edward Lank (2015). Clutching Is Not (Necessarily) the Enemy. *Proc. of CHI'15, the 33rd Conference on Human Factors in Computing Systems*. p. 4199-4202.
- C22 Jeff Avery, Mark Choi, Daniel Vogel, Edward Lank (2014). Pinch-to-Zoom-Plus: An enhanced pinch-to-zoom that reduces clutching and panning. *Proc. of UIST'14, the 27th ACM Symposium on User Interface Software and Technology*. p. 595-604.
- C21 Alix Goguey, Géry Casiez, Daniel Vogel, Thomas Pietrzak, Nicolas Roussel (2014). Adoiraccourcix: multi-touch command selection using finger identification. *Proc. of IHM'14, 26e conférence francophone sur l'Interaction Homme-Machine*. (French Text) p 28-37.

★ BEST PAPER AWARD

- C20 James Wallace, Daniel Vogel, Edward Lank (2014). Effect of Interior Bezel Width on Visual Search Performance. *Proc. of the International Symposium on Pervasive Displays*. 6 p.
- C19 James Wallace, Daniel Vogel, Edward Lank (2014). The Effect of Interior Bezel Presence and Width on Magnitude Judgement. *Proc. of Graphics Interface 2014*. p.175-182.
- C18 Yuexing Luo, Daniel Vogel (2014). Crossing-Based Selection with Direct Touch Input. *Proc. of CHI'14, the 32nd Conference on Human Factors in Computing Systems*. p. 2627-2636.

★ BEST PAPER HONOURABLE MENTION

- C17 Tiffany Inglis, Daniel Vogel, Craig Kaplan. (2013). Rasterizing and antialiasing line art in the pixel art style. *Proc. of NPAR'13, Symposium on Non-Photorealistic Animation and Rendering*, p. 25-32.
- C16 Géry Casiez, Nicholas Roussel, Jonathan Aceituno, Daniel Vogel. (2012). Giving a Hand to the Eyes: Leveraging Input Accuracy for Subpixel Interaction. *Proc. of UIST'12, the 25th ACM Symposium on User Interface Software and Technology*. p. 351-358.
- C15 Shehroz Khan, Daniel Vogel. (2012). Evaluating Visual Aesthetics in Photographic Portraiture. *Proc. of CAe '12, Symposium on Computational Aesthetics*. p. 55-62.
- C14 Alec Azad, Jaime Ruiz, Daniel Vogel, Mark Hancock, Edward Lank. (2012). Territoriality and Behaviour On and Around Large Vertical Publicly-Shared Displays. *Proc. of DIS'12, ACM conference on Designing Interactive Systems*. p. 468-477.
- C13 Daniel Vogel, Géry Casiez. (2012). Hand Occlusion on a Multi-Touch Tabletop. *Proc. of CHI'12, the 30th Conference on Human Factors in Computing Systems*. p. 2307-2316.
- C12 Géry Casiez, Nicholas Roussel, Daniel Vogel. (2012). 1€ Filter: A Simple Speed-based Low-pass Filter for Noisy Input in Interactive Systems. *Proc. of CHI'12, the 30th Conference on Human Factors in Computing Systems*. p. 2527-2530.
- C11 Daniel Vogel, Géry Casiez. (2011). Conté: Multimodal Input Inspired by an Artist's Crayon. *Proc. of UIST'11, the 24th ACM Symposium on User Interface Software and Technology*. p. 357-366.
- C10 Radu-Daniel Vatavu, Daniel Vogel, Géry Casiez, Laurent Grisoni. (2011). Estimating the Perceived Difficulty of Pen Gestures. *Proc. of INTERACT'11, the 13th IFIP TC13 Conference on Human-Computer Interaction*. Springer. p. 89-106.

- C9 Daniel Vogel, Ravin Balakrishnan. (2010). Occlusion-Aware Interfaces. *Proc. of CHI'10, the 28th Conference on Human Factors in Computing Systems*. p. 263-272.

★ **BEST PAPER AWARD**

- C8 Daniel Vogel, **Matthew Cudmore**, Géry Casiez, Ravin Balakrishnan, Liam Keliher. (2009). Hand Occlusion with Tablet-sized Direct Pen Input. *Proc. of CHI'09, the 27th Conference on Human Factors in Computing Systems*. p. 557-566.
- C7 Géry Casiez, Daniel Vogel. (2008). The Effect of Spring Stiffness and Control Gain with an Elastic Rate Control Pointing Device. *Proc. of CHI'08, the 27th Conference on Human Factors in Computing Systems*. p. 1709-1718.

★ **BEST PAPER HONOURABLE MENTION**

- C6 Ian Vollick, Daniel Vogel, Maneesh Agrawala, Aaron Hertzmann. (2007). Specifying Label Layout Styles by Example. *Proc. of UIST'07, the 20th ACM Symposium on User Interface Software and Technology*. p. 221-230.
- C5 Géry Casiez, Daniel Vogel, Qing Pan, Christophe Chaillou. (2007). RubberEdge: Reducing Clutching by Combining Position and Rate Control with Elastic Feedback. *Proc. of UIST'07, the 20th ACM Symposium on User Interface Software and Technology*. p. 129-138.
- C4 Daniel Vogel, Patrick Baudisch. (2007). Shift: A Technique for Operating Pen-Based Interfaces Using Touch. *Proc. of CHI'07, the 26th Conference on Human Factors in Computing Systems*. p. 657-666.

★ **BEST PAPER AWARD**

- C3 Clifton Forlines, Daniel Vogel, Ravin Balakrishnan. (2006). HybridPointing: Fluid Switching Between Absolute and Relative Pointing with a Direct Input Device. *Proc. of UIST'06, the 19th ACM Symposium on User Interface Software and Technology*. p. 211-220.
- C2 Daniel Vogel, Ravin Balakrishnan. (2005). Distant freehand pointing and clicking on very large high resolution displays. *Proc. of UIST'05, the 18th ACM Symposium on User Interface Software and Technology*. p. 33-42.
- C1 Daniel Vogel, Ravin Balakrishnan. (2004). Interactive public ambient displays: transitioning from implicit to explicit, public to personal, interaction with multiple users. *Proc. of UIST'04, the 17th ACM Symposium on User Interface Software and Technology*. p. 137-146.

★ **TOP TEN MOST CITED ARTICLE ACROSS HISTORY OF UIST**

## Journal Articles

- J4 Grindrod, Kelly, **Hassan Khan**, Urs Hengartner, Stephanie Ong, Alexander G. Logan, Daniel Vogel, Robert Gebotys, and Jilan Yang. Evaluating authentication options for mobile health applications in younger and older adults. *PloS one* 13, no. 1 (2018): e0189048.
- J3 **Alix Goguey**, Daniel Vogel, Fanny Chevalier, Thomas Pietrzak, Nicolas Roussel, Géry Casiez (2017). Leveraging Finger Identification to Integrate Multi-touch Command Selection and Parameter Manipulation. *International Journal of Human-Computer Studies*. Elsevier, p. 21-36.
- J2 Daniel Vogel, Ravin Balakrishnan. (2010). Direct Pen Interaction with a Conventional Graphical User Interface. *Human-Computer Interaction Journal*. Taylor & Francis, 25(4), p. 324-388.
- J1 Géry Casiez, Daniel Vogel, Ravin Balakrishnan, Andy Cockburn. (2008). The Impact of Control-Display Gain on User Performance in Pointing Tasks. *Human-Computer Interaction Journal*. Taylor & Francis. 23(3), p. 215-250.

★ **TOP TEN CITED ARTICLE FOR HCIJ FROM 2007 - 2010**

## Patents

- P4 Géry Casiez, Daniel Vogel. (Submitted 2011). Multitouch Human Interface System and Device for Graphical Input, and Method for Processing Image in Such a System. 1000126888, Oct 14, 2011.

- P3 Patrick Baudisch, Ken Hinckley, Raman Sarin, Edward Cutrell, Andy Wilson, Daniel Vogel. (Awarded 2010). Operating touch screen interfaces. US 7692629 B2, Filed Dec 7, 2006.
- P2 Géry Casiez, Daniel Vogel. (Awarded 2009). Isotonic / elastic touch-sensitive input device. WO Patent 2,009,043,591, Filed Oct 5, 2007.
- P1 Maneesh Agrawala, Adam Eversole, Daniel Vogel, Charles Jacobs, David Salesin. (Awarded 2006). Techniques for generating the layout of visual content. US 2006/0200759 A1, Filed Mar 5, 2005.

## Art Exhibitions

- A17 Siftor and My Name is Owen (2013). Owens Art Gallery, Sackville, NB. (solo exhibition).  
**★ EXHIBITION CATALOG WITH INVITED ESSAY BY SUSAN EDLESTEIN**
- A16 Mondo Media (2013). Struts Art Gallery, Sackville, NB. (group exhibition).
- A15 Travelogue (1997). Artspeak Gallery, Vancouver. (group exhibition).
- A14 Las Vegas (1997). Havana, Vancouver. (group exhibition).
- A13 Suburbia (1997). The Helen Pitt Gallery, Vancouver. (group exhibition).
- A12 3 Sections, 1 Body (1997). Community Arts Council of Vancouver. (group exhibition).
- A11 Exact Change (1996). The Helen Pitt Gallery, Vancouver. (group exhibition).
- A10 Anniversary of the Comic (1996). Wedgemount Gallery, Belgium. (juried group exhibition).
- A9 Beyond Borders (1996). Viking Union, Bellingham, WA. (juried group exhibition).
- A8 Straight White Male (1996). Emily Carr Institute, Vancouver. (group exhibition).
- A7 CanadAustralia Exchange (1996). Sydney, Toronto; Vancouver. (juried group exhibition).
- A6 Images and Objects (1995). Kamloops, British Columbia. (juried group exhibition).
- A5 Blue Plate Special (1995). The Flat, Vancouver. (group exhibition).
- A4 Hydromedia (1995). Flux Studios, Vancouver. (group exhibition).
- A3 Speed Kills (1995). The Flat, Vancouver. (group exhibition).
- A2 13th Annual Vancouver Exhibition (1995). Community Arts Council of Vancouver. (juried group exhibition).
- A1 Toys 'R' Art (1994). The Flat, Vancouver. (group exhibition).

## Reports, Demonstrations, Editorials, Other Adjunct Publications

- O5 Dustin Freeman, Ricardo Jota, Daniel Vogel, Daniel Wigdor, Ravin Balakrishnan. (2015). A Dataset of Naturally Occurring, Whole-Body Background Activity to Reduce Gesture Conflicts. *arXiv preprint arXiv:1509.06109*. Technical Report. 10 p.
- O4 Alix Goguet, Géry Casiez, Daniel Vogel, Fanny Chevalier, Thomas Pietrzak, Nicolas Roussel. (2014). A three-step interaction pattern for improving discoverability in finger identification techniques. *Proc. of the adjunct publication of the 27th annual ACM symposium on User interface software and technology (UIST'14 Adjunct)*. Demonstration. p. 33-34.
- O3 Daniel Vogel. (2013). Introduction to Mondo Monde New Media Festival Catalogue. *Faucet Media Arts Centre*.
- O2 Daniel Vogel. (2012). Book Review: Form+Code in Design, Art, and Architecture, by Casey Reas, Chandler McWilliams, and LUST. *Journal of Mathematics and the Arts* v6 i4, p. 221-223.



- 01 Clifton Forlines, Daniel Vogel, Nicholas Kong, Ravin Balakrishnan. (2006). Absolute vs. relative direct pen input. *Mitsubishi Electric Research Labs, TR2006-066*. Technical Report. 10 p.

## Symposia

**Rank Prize Symposium**, invited participant, Nov 2013, *Grasmere, United Kingdom*

“Natural User Interfaces, Augmented Reality and Beyond: Challenges at the Intersection of HCI and Computer Vision”,

**Schloss Dagstuhl Seminar**, invited participant, Nov 2013, *St. Wendel, Germany*

“Proxemics in Human-Computer Interaction” (#13452)

## Invited talks

### Keynote

“Immersive Analytics” Workshop, ACM ISS, Niagara Falls, *Nov 6, 2016*

Atlantic Provinces Art Gallery Association, PEI, “Keynote: Beyond the Keyboard”, *May 2008*

### Invited Speaker

Intelligent Interaction Workshop, Montreal, “Intelligent Interaction Techniques”, *May, 2018*

SACHI, St. Andrews University, “New Approaches to Mode-Switching”, *June 13, 2017*

Google Canada, Kitchener, “New Approaches to Mode-Switching”, *Apr 26, 2017*

Toronto User Experience (TUX) Member Presentation, “Expressive Interaction”, *Mar 28, 2017*

CLUE Seminar Series, Carleton University, Ottawa, “Expressive Interaction”, *Jan 20, 2017*

University of Copenhagen, Denmark, “Expressive Interaction”, *Jan 29, 2016*

CS4U Day (high school outreach), University of Waterloo, “Computer Vision”, *Dec 7, 2015*

Thalmic Labs Lunchtime Seminar, Kitchener, “Human-Computer Interaction”, *May 20, 2015*

Critical Media Lab, University of Waterloo, “Subtle Interaction and Art”, *Apr 15, 2015*

University of Saskatchewan, “Subtle Interaction and Art”, *Aug, 2014*

Kitchener Public Library, Canada, “Human-Computer Interaction”, *Feb 2014*

Owens Art Gallery, Sackville, NB, “Siftor and My Name is Owen”, *Mar 2013*

University of Waterloo, Canada, “Interacting without a Mouse”, *Oct 2010*

Baked Ham Speaker Series, Sackville, NB, “Digital Conte”, *Aug 2010*

Université Paris-Sud, France, “Hand Occlusion and Direct Input”, *Jun 2010*

EuraTechnologies, Lille, France, “Hand Occlusion and Direct Input”, *Jun 2010*

Mount Allison University, NB, “Direct Input on Very Large and Very Small Displays”, *Mar 2007*

Université de Lille, France, “Large Display Interaction”, *Oct 2006*

Mount Allison University, NB, “Interactive Public Ambient Displays”, *Feb 2005*

### Conference Presentations

DIS 2016, Brisbane; CHI 2016, San Jose; UIST 2015, Charlotte; GI 2015, Halifax; CHI 2010, Atlanta; CHI 2009, Boston; CHI 2007, San Jose; UIST 2011, Santa Barbara; UIST 2006, Montreux; UIST 2005, Seattle; UIST 2004, Santa Fe

# Teaching

## Course Instructor

*Note:* All courses taught at University of Waterloo unless otherwise specified.

### **Computational Digital Art Studio**, *Winter 2018*

upper-level studio course to create computational art works, capstone course for Computer Science majors and Fine Art majors taking computation art option (CS/FINE 383)

### **Advanced Human-Computer Interaction**, *Winter 2018, Winter 2017, Spring 2015*

graduate special topics course on "Applied Computer Vision for HCI" (CS 889)

### **User Interfaces**, *Fall 2017, Spring 2013*

3<sup>rd</sup> year computer science course in user interface programming (CS 349)

### **Intro to Computer Programming**, *Fall 2014, Fall 2015, Fall 2016*

1<sup>st</sup> year non-Math majors, computer programming for interactive media (CS 105)

### **Intro to Computer Science II**, *Winter 2016*

1<sup>st</sup> year course for non-CS majors using Scheme and Python (CS 116)

### **Advanced Human-Computer Interaction**, *Spring 2012*

graduate special topics course on "Advanced Interaction Techniques" (CS 889)

### **Computer Graphics**, Mount Allison University, *Winter 2012*

3<sup>rd</sup> year computer science course in computer graphics (COMP 3831)

### **Advanced Computer Graphics**, *Fall 2011*

graduate special topics course on "Aesthetics and Computer Graphics" (CS 899)

### **Computer Graphics**, Mount Allison University, *Winter 2010*

3<sup>rd</sup> year computer science course in computer graphics (COMP 3831)

### **Design of Interactive Computational Media**, University of Toronto, *Fall 2006*

3<sup>rd</sup> year computer science course in human-computer interaction (CSC 318)

## Other

### **Programming for Artists Workshop**, Struts Gallery and Artist Run Centre, *Fall 2012*

weekend workshop for visual artists and technologists using the Processing language for algorithmic drawing using online data streams and computer vision

### **Algorithmic Drawing Workshop**, Mount Allison University, *Winter 2012*

2-day workshop for visual arts students, introduced graphic programming with the Processing language for algorithmic drawing and aesthetic manipulation of pen input

### **Self-directed Project Course**, University of Toronto, *Summer 2010*

supervised summer project course in requirements and design for online software held via weekly video conference meetings with two students

### **Teaching Assistant**, University of Toronto, *Spring 2006, Spring 2004, Fall 2003*

3<sup>rd</sup> year computer science course in human-computer interaction (CSC318)

### **Computer Camp Instructor**, University of British Columbia, *1993*

taught HyperCard animation and programming to children ages 8 to 12

# Supervision

## Post-doctoral

**Quentin Roy**, University of Waterloo, *May 2018* -  
“Interaction for Intention-Based User Interfaces”  
co-supervision (with Jesse Hoey)

**Aakar Gupta**, University of Waterloo, *Nov 2017* -  
“Using Augmented Reality for Novel Input”

**Hassan Khan**, University of Waterloo, *Sep 2017* -  
“Usable Security”  
co-supervision (with Urs Hengartner)

past

**Fabrice Matulic**, Postdoctoral Fellow, *May 2016 – July 2017*  
Pen and Touch Input, Large Display Interaction

**Mathieu Nancel**, Postdoctoral Fellow, *Mar 2014 – Aug 2015*  
Clutching, Novel Input Techniques, Touch Prediction

## Graduate

**Yen-Ting (Allen) Yeh**, PhD, *May 2018* –  
“Intention-based User Interfaces”

**Nikhita Joshi**, MMath, *Sep 2017* –  
“Spatial Augmented Reality”

**Zhe Liu**, MSc Applied Health Sciences, *May 2017* –  
“Investigating Fatigue on Large Touch Walls”  
co-supervision (with James Wallace)

**Blaine Lewis**, MMath, *Jan 2017* –  
“Characteristics of Rehearsal-Based Interfaces”

**Jeremy Hartmann**, PhD, *Sep 2016* –  
“Interaction Techniques for Spatial Augmented Reality”

**Hemant Surale**, PhD, *Sep 2015* –  
“Mode Switching in Touch and Virtual Reality”

**Gustavo Tondello**, PhD, *Sep 2015* –  
“Games Research”  
co-supervision (with Lennart Nacke)

**Jeff Avery**, PhD, *May 2012* -  
“Improving Pinch-to-Zoom”  
co-supervision (with Ed Lank)

past

**Lisa Elkin**, MMath, *May 2016 – May 2018*  
“Contact-sensing Input Device Manipulation and Expertise”

**Terence Dickson**, MMath, *Sep 2015 – Oct 2017*

“A Hybrid Technique for Absolute and Relative Input on Interactive Walls”

**Jingjie Zheng**, MMath, *Sep 2014 – Aug 2017*

“Subtle Interaction Enabled by Keyboard Finger Identification”

**Qifan Li**, MMath, *Sep 2014 – May 2016*

“Improving Selfie Aesthetics with Interactive Guidance based on Empirical Models”

**Mingyu Liu**, MMath, *Sep 2013 – May 2015*

“Designing Gunslinger: an Inter-modal Large Display Interaction”

**Yuexing (Corona) Luo**, MMath, *May 2013 – May 2015*

“Touch Crossing-Based Selection and the Pin-and-Cross Technique”

**William Saunders**, MMath, *May 2013 – May 2015*

“Foot Input for Desktop Applications”

## Undergraduate

past

**Drini Cami**, USRA Research Assistant, *full time May – Aug 2017, part time Jan – May 2017*

“Unimanual pen and touch”

**Kishor Prins Sudarshanakumar**, Research Assistant, *part time Sep – Dec 2016*

“Pointing using gaze, head tracking, and non-verbal audio”

**Minyoung Yoo**, Research Assistant, *part time Sep – Dec 2016*

“Near Eye Display for Secure Input”

**Tristan Hume**, USRA Research Assistant, *full time Jan – May 2016*

“Pointing using gaze, head tracking, and non-verbal audio”

**Somayan Chakrabarti**, Research Assistant, *full time Sep – Dec 2015*

“Conté Mode Switching”

**Shao-Yan Tan**, USRA Research Assistant, *full time May– Aug 2015, part time Sep - Dec 2015*

“Kinematic Log for Two-finger Transformations”

**Blaite Han**, Research Assistant, *part time May– Aug 2015*

“Scripting and Visualizing Live Coding Demonstrations”

**Qifan Li**, Research Assistant, *part time Jan - Apr 2014*

“Quantifying Aesthetics of Photographic Portraiture”

**Faizan Haque**, USRA Research Assistant, *full time Nov 2013 – Apr 2014*

“Gestural Pointing using Electromyography and Inertial Motion”

**Ray Sun**, Research Assistant, *part time Sept - Dec 2013*

“Errant Touches”

**Yuexing Luo**, MMath, *part time Jan - May 2013*

CS 499 “Multi-touch Crossing”

**Greg Legere**, USRA Research Assistant, Mount Allison University, *full time May – Sep 2011*

“Human-in-the-loop Classification of Diatoms”  
co-supervision (with Andrew Irwin)

**Chris MacLeod**, USRA Research Assistant, Mount Allison University, *full time May – Sep 2009*  
undergraduate research project: “Sensing Techniques for Large Public Display Input”  
co-supervision (with Liam Keliher)

**Matthew Cudmore**, USRA Research Assistant, Mount Allison University, *full time May – Sep 2008, May – Sep 2009*  
undergraduate research project: “Direct Pen Input and Occlusion”  
co-supervision (with Liam Keliher)

## Mentoring

**Teddy Seyed**, University of Calgary, *2015 - 2017*  
PhD research: “interaction techniques for wearable and smartphone computing”  
mentoring (with Xing-Dong Yang, Dartmouth College)

**Alix Goguey**, PhD Globallink Exchange, *Jun. 2015 – Sep. 2015*  
“Subtle Interaction Enabled by Touchscreen Finger Identification”  
co-supervision (with Géry Casiez, Inria Lille, France)

**Joshua Jung**, University of Waterloo, *2017*  
mentoring: “Designable Markers”

**Hassan Khan**, University of Waterloo, *2015 - 2016*  
PhD research: “Implicit Authentication Usability and Mimicry”  
mentoring (with Urs Hengartner, advisor)

**Shu Ke**, Singapore Management University, *2012*  
masters thesis: “Errant Touches with Direct Input”  
mentoring (with Richard Davis, advisor)

**Shehroz Kahn**, University of Waterloo, *2012*  
research project: “Aesthetic Photographic Portraiture”

**Alex Azad**, University of Waterloo, *2011 - 2012*  
masters thesis: “Behaviour On and Around Large Displays”  
mentoring (with Ed Lank, advisor and Mark Hancock)

## Residences and Internships

**Visiting Researcher**, INRIA / Université de Lille, France, *May – Jun 2010*  
“Hybrid device input for multi-touch tables” with Géry Casiez

**Summer Research Internships**, Microsoft Research, Redmond  
“Touch Screen Interaction” with Patrick Baudisch, *Summer 2006*  
“Automated Document Layout” with Maneesh Agrawala and David Salesin, *Summer 2004*

**Artist Residency**, Banff Centre for the Arts, *Jul – Aug 1998*  
studio residency in digital silkscreen printmaking

## Service

### Cheriton School of Computer Science

**School Advisory Committee on Appointments (SACA)**, *2016 – 2018*  
Responsible for recruiting new faculty members who will hold regular appointments

## **Undergraduate Academic Plans Committee (UAPC), 2013 – 2016**

Led effort to create new introductory programming course for arts students (2014)

## **UAPC Sub-committee Chair, 2015**

Created new HCI Option for CS Majors

## **UAPC Sub-committee Chair, 2015**

Created new Computational Art Option for CS Majors

## **University of Waterloo**

### **Internal-External PhD Thesis Examiner**

Deltcho Vatlchanov (supervised by Colin Ellard), “Physiological and Affective Responses to Immersion in Virtual Reality: Effects of Nature and Urban Settings”, **Dept. of Psychology, University of Waterloo, Aug 2013**

### **Research Ethics and Integrity Advisory Committee (REIAC), 2015 –**

Represented the Faculty of Mathematics on a university wide committee to advise the Office of Research Ethics (ORE) on policy development and guidelines.

### **Electronically Assisted Marking RFP Adviser, 2014**

Faculty of Mathematics committee to select and evaluate a new grading system

### **Expense System Selection Committee, 2012 – 2014**

University wide committee to select, evaluate, and integrate a new expense claims system

## **External**

### **External PhD Thesis Examiner**

Anders Markussen (supervised by Kasper Hornbæk), “Interacting On and Around Large Displays”, **Dept. of Computer Science, University of Copenhagen, Jan 2016**

Andre Doucette (supervised by Carl Gutwin and Regan Mandryk), “Group Reaching over Digital Tabletops with Digital Arm Embodiments”, **Dept. of Computer Science, University of Saskatchewan, Aug 2014**

### **Program Chairing**

Conference on Human Factors in Computing Systems (CHI), Sub-Committee Co-Chair, **2017, 2018**

International Conference on Interactive Surfaces and Spaces (ISS), Panels Co-Chair, **2016**

Symposium on User Interface Software and Technology (UIST), Posters Co-Chair, **2014, 2015**

### **Program Committees**

Symposium on User Interface Software and Technology (UIST), **2012, 2014, 2015, 2018**

Interactive Surfaces and Spaces (ISS), **2017**

Conference on Human Factors in Computing Systems (CHI), **2013, 2016**

Mobile HCI, **2015**

Graphics Interface (GI), **2014**

Pervasive Displays (PerDis), **2014**

Interactive Tabletops and Surfaces (ITS), **2011, 2012**

### **Invited Panelist**

Symposium on User Interface Software and Technology (UIST), Doctoral Consortium, **2016**

## Peer Reviewing

**Conferences:** ACM Conference on Human Factors in Computing Systems (CHI), ACM Symposium on User Interface Software and Technology (UIST), Graphics Interface (GI), UbiComp, SIGGRAPH, INTERACT, IEEE Symposium on 3D User Interfaces (3DUI), Designing Interactive Systems (DIS), Mobile HCI, Eurographics Data Visualization (EuroVis),

**Journals:** Transactions on Computer-Human Interaction Journal (ToCHI), Human-Computer Interaction Journal, International Journal of Human-Computer Interaction (IJHCI), International Journal of Human-Computer Studies (IJHCS), IEEE Computer Graphics and Applications (CGA), IEEE Transactions on Visualization and Computer Graphics (ToVCG)

**Books:** Morgan & Claypool Publishers

**Grants:** NSERC Discovery Grants, NSERC Collaborative Research and Development Grants (CRD), Mitacs Accelerate

## other academic and cultural service

**Steering Committee**, CultureWorks, Mount Allison University, *2010 – 2012*  
SSHRC Aid to Small Universities Research Program (ASUP)

**Board of Directors**, Struts Gallery and Artist Run Centre, *2008 - 2012*  
served as president of the board from 2011 - 2012

## Press

*Note:* only a representative sample of press is listed below.

re: [c41](#) Modular Smartphone for Lending

**MIT Technology Review**, "This 3-in-1 Phone Will Make You Want to Share It with Strangers", *Oct 2017*

**ZDNet**, "Here's the 3-in-1 modular lending phone: Could it really be the way ahead?", *Oct 2017*

re: [c39](#) Guided Selfie

**BBC World Service**, live interview, *Aug 2017*

**CTV News**, video conference interview, *Aug 2017*

**German Public Radio**, interview "Selfie-App für Selbstdarsteller", *Aug 2017*

**Kitchener-Waterloo Record**, article w/ quotes "UW app helps perfect the selfie", *Aug 2017*

**Refinery29**, article w/ quotes "How to Take the Perfect Selfie, According to Science", *Aug 2017*

**Daily Mail**, article w/ quotes "Canadian scientists create an app for the perfect selfie", *Aug 2017*

Various articles on: **Engadget**, **Digital Times**, **Android Headlines**, **Gizmodo**, etc.

re: [c37](#) Cito Actuated Watch

**Digital Trends**, "This Absurdly Overengineered Smartwatch Crawls, Tilts, and Slides on Your Wrist", *May 2017*

**Economic Times**, "You will love to flaunt this smartwatch, it does more than you can", *May 2017*

Many more on: **Android Headlines**, **TechRadar**, **Wearable**, **Gizbot**, **Slashgear**, etc.

re: <sup>c33</sup> Tap-Kick-Click

**R&D Mag**, "Tap-Kick-Click Your Way to Physically Active Computing", *Jun 2016*

**Seeker**, "Cyberslackers: Tap, Kick Your PC to Health", *Jun 2016*

re: <sup>c32</sup> Finger-Aware Shortcuts

**Gizmodo**, "The Keys on This Keyboard Respond Differently to Every Finger", *May 2016*

**Gizmag**, "Keyboard shortcut tech keeps an eye on your fingers", *May 2016*

**Digital Trends**, "Could posture-based inputs soon replace keyboard shortcuts?", *May 2016*

re: <sup>c31</sup> Doppio Tangible Smartwatch

**Gizmodo**, "A Multi-Screen Smartwatch Might Actually Be a Brilliant Idea", *May 2016*

**Slashgear**, "Doppio: a smartwatch prototype with a removable 2nd screen", *May 2016*

**Android Community**, "Researchers working on dual-screen smartwatch", *May 2016*

**Science Daily**, "Dual screen smartwatch unveiled", *May 2016*

**Gizmag**, "Experimental smartwatch has a movable second screen", *May 2016*

**Times of India**, "Now a smartwatch with two displays", *May 2016*

**SlashGear**, "Doppio: a smartwatch prototype with a removable 2nd screen", *May 2016*

re: <sup>A17</sup> Siftor art exhibition

**CBC Radio**, Spark, interview on "Listen, Touch, Command", *Apr 2013*

**CBC News**, "Will gesture controls replace your mouse and keyboard?" *Apr 19, 2013*

**Times and Transcript**, "Dan Vogel's exhibit – the future of art galleries?", *Mar 2013*

**HERE NB**, "An Experiment in Digital Art", *Mar 2013*

**Telegraph Journal**, Feature article in Salon Arts, *Mar 2013*

**CBC Radio**, Information Morning, interview on "Byte Sized Art", *Mar 2013*



various

**MIT Technology Review**, invited commentary on “The Invisible iPhone”, *May 2011*

**CBC Radio**, Information Morning, “Computer Art Show”, *Nov 2010*

**ERCIM News**, “RubberEdge”, *Apr 2008*

**MIT Technology Review**, “Precision Pointing with Fat Fingers”, *May 2007*

**ComputerWorld**, “Microsoft Research tackles mobile touch-screen problems”, *May 2007*

**CBC Radio Ideas**, “By Design: The Politics of Everyday Objects”, *Jun 2006*

**Mix Magazine**, “Artist Run Portfolio: Fax Sux”, *Sep 1995*

**MuchMusic Television**, “Fax: Hydromedia”, *Apr 1995*; “Speed Kills”, *Apr 1995*

## Portfolio

research and artwork portfolio available

<http://www.nonsequitoria.com>