Lyn Bartram

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Education

Ph.D.	2001.	Computer Science, Simon Fraser University.
M.Math	1989.	Computer Science, University of Waterloo.
Grad. Diploma	1986	Computer Science, Concordia University (B.Sc. equivalent)
B.A.	1975.	Political Science, University of British Columbia
A.A.	1973.	Humanities, American College of Switzerland

Professional Experience

- Associate Professor, School of Interactive Arts + Technology, Simon Fraser University — Current
- Visiting Research Fellow, Urban Research Program, Griffith University, Brisbane (Sabbatical) — 2013
- Visiting Researcher, BC Hydro PowerSmart (Sabbatical) — 2013
- Research Manager, NECTAR NSERC National research partnerships network. University of British Columbia — 2004-2005
- Principal Research Scientist, Colligo Networks — 2001-2003
- Research Associate, Simon Fraser University — 1991-2001
- Research Associate, University of Waterloo — 1988-1990
- Research Assistant, University of Waterloo — 1986-1988

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Publications

Typography: **Bold** denotes a student/junior researcher. * denotes a student I supervise(d) or on whose committee I am/was actively engaged.

Journals

A1. **A. Sakiraya**, **M. Correll**, L. Bartram, M. Tory and D. Fisher. What do we talk about when we talk about dashboards? *IEEE Transactions on Visualization and Computer Graphics*, to appear (accepted to IEEE Visualization 2018). 2018

A2. ***Feng, C**., Bartram, L. and Gromala, D. Beyond Data: Abstract **Motionscape** as Affective Visualization. *Leonardo/ISAST*, MIT Press. 2017

A3. ***Makonin, Stephen,** Fred Popowich, Ivan V. Bajic, Bob Gill, and Lyn Bartram. Exploiting HMM Sparsity to Perform Online Real-Time Nonintrusive Load Monitoring. *IEEE Transactions on Smart Grid*, 7(6), 2575-2585. 2016

A4. Bartram, L. Design Challenges and Opportunities for Eco-Feedback in the Home. *IEEE Computer Graphics and Applications*, *35*(4), 52–62. 2015

A5. ***Huang, D.,** Tory, M., Aseniero, B.A., Bartram, L., Bateman, S., Carpendale, S., Tang, A. and Woodbury, R. Personal visualization and personal visual analytics. , *IEEE Transactions on Visualization and Computer Graphics*, *21*(3), pp.420-433**.** 2015

A6. ***S. Makonin**, L. Bartram, and F. Popowich, "A Smarter Smart Home: Case Studies of Ambient Intelligence," *Pervasive Computing*, IEEE, vol. 12, no. 1, pp. 58–66. 2013

A7. ***M. Lockyer** and L. Bartram. Affective motion textures, *Computers & Graphics*. 36(6), pp. 776-790. 2012

A8. ***J. Rodgers** and L. Bartram. Exploring Ambient and Artistic Visualizations for Residential Energy Use. *IEEE Transactions on Visualization and Computer Graphics*, December 2012, 17(12):2489-97.. 2012

A9. Bartram, Lyn; ***Cheung, Billy**; Stone, Maureen; The Effect of Colour and Transparency on the Perception of Overlaid Grids. *IEEE Transactions on Visualization and Computer Graphics*, 17 (12), 2011, pp 1942 – 1948 2011

A10. ***J. Rodgers**, L. Bartram, and R. Woodbury. 2011. Challenges in sustainable human-home interaction. *XRDS* 17, 4 (June 2011), 42-46. 2011

A11. .L Bartram and M. Stone. Whisper, Don't Scream: Grids and Transparency. *IEEE Transactions on Visualization and Computer Graphics*, 17 (10), Oct. 2011, pp. 1444-1458. 2010

A12. L. Bartram, ***J. Rodgers** and **K. Muise**. Chasing the Negawatt: Visualization for Sustainable Living. *IEEE Computer Graphics and Applications*, 30 (3), pp. 8-14. 2010

A13. Bartram, L., & ***Yao, M**. Animating causal overlays. *Computer Graphics Forum* 27 (3), pp. 751-758). Blackwell Publishing Ltd. 2008

A14. Bartram, L., & Blackstock, M. Designing portable collaborative networks. *Queue*, 1(3), 40. ACM 2003

A15. Bartram, L., Ware, C., & Calvert, T. Moticons: detection, distraction and task. *International Journal of Human-Computer Studi*es, 58(5), 515-545. 2003

A16. D. S. McCrickard, M. Czerwinski, L. Bartram: Introduction: design and evaluation of notification user interfaces. International Journal of Human-Computer Studies. 58(5), pp. 509-514. 2003

A17. Bartram, L., & Ware, C. Filtering and brushing with motion. *Information Visualization*, 1(1), 66-79. 2002

A18. Schaffer, D., Zuo, Z., Greenberg, S., Bartram, L., Dill, J., Dubs, S., & Roseman, M.. Navigating hierarchically clustered networks through fisheye and full-zoom methods. *ACM Transactions on Computer-Human Interaction (TOCHI)*, 3(2), 162-188. 1996

Book Chapters

A19. Bach B, Stefaner M, Boy J, Drucker S, Bartram L et al. Narrative Design Patterns for Data-Driven Storytelling. In Carpendale, S., Diakopoulos, N., Riche, N. H., & Hurter, C. (eds). Data-Driven Storytelling. CRC Press. 2018

A20. K. Velikov, L. Bartram, G. Thün, L. Barhydt, J. Rodgers and R. Woodbury, "Empowering The Inhabitant: Communications Technologies, Responsive Interfaces and Living In Sustainable Buildings," in Henn, Rebecca L, Hoffman, Andrew J, Biggart, Nicole Woolsey. *Constructing green: The social structures of sustainability.* Cambridge, Massachusetts: The MIT Press 2013

Archival Conference Proceedings (refereed)

A21. **Nowak,* S.,** Bartram, L. and Schiphorst, T. A Micro-Phenomenological Lens for Evaluating Narrative Visualization. *To appear, IEEE BELIV 2018 (valuation and BEyond - methodoLogIcal approaches for Visualization).* 2018

A22. F. Samsel, L. Bartram and D. Rodgers. Art, Affect and Color: Creating Expressive Scientific Visualization (full paper). *To appear, 2018 IEEE Visualization Art Program* 2018

A23. **Singhal, S.,** Neustaedter, C., Odom, W., Bartram, L. and **Heshmat, Y**. "Time-Turner: Designing for Reflection and Remembrance of Moments in the Home." In *Proceedings of the 2018 CHI Conference on Human Factors in Computing Systems*, p. 179-188 2018

A24. Bartram, L., ***Patra,** A., & Stone, M. Affective Color in Visualization. In *Proceedings of the 2017 CHI Conference on Human Factors in Computing Systems* (pp. 1364-1374). ACM. 2017

A25. Bartram, L., ***Kashani, M.** and Woodbury, R. Human-centred models of use for energy efficient residential operation. *Proceedings of DEMAND 2016 Conference*, Lancaster, UK. 2016

A26. **Singhal, S**., and Bartram, L. Time-Turner: Data Engagement Through Everyday Objects in the Home. *Extended Proceedings of the 2016 ACM Publication on Designing Interactive Systems.* ACM, 2017. 2017

A27. ***Huang, D,** Tory, M. and Bartram, L. A Field Study of in-Calendar Visualizations, *Proceedings of Graphics Interface 2016*, Victoria, Canada. **Winner, Best HCI Paper**. 2016

A28. ***Lockyer, M.,** Bartram, L., Schiphorst, T. and Studd, K. Enhancing Visualization with Abstract Motion**.** *Proceedings of Human Vision and Electronic Imaging*, San Francisco 2106**.** 2016

A29. **Li W,** Bartram L, Pasquier P. (2016). Techniques and Approaches in Static Visualization of Motion Capture Data. Proceedings of the 3rd International Symposium on Movement and Computing. ACM International Symposium on Movement and Computing (MoCO), Greece, pp 14-20. 2016

A30. **Malmstrom, C., Zhang, Y.,** Pasquier, P., Schiphorst, T., & Bartram, L. (2016, July). Mocomp: A tool for comparative visualization between takes of motion capture data. In *Proceedings of the 3rd International Symposium on Movement and Computing* (p. 11). ACM. 2016

A31. **Pan R,** Bartram L, Neustadter C. (2016). TwitchViz: A Visualization Tool for Twitch Chatrooms. Proceedings of the 2016 CHI Conference Extended Abstracts on Human Factors in Computing Systems. CHI Conference on Human Factors in Computing Systems. 2016

A32. *** Kashani, Maryam H**., Lyn Bartram, and Robert Woodbury. "Green Building Design as If People Mattered." *Sustainable Human–Building Ecosystems.* 176-184. 2015

A33. ***Lockyer, M.,** Bartram, L., Schiphorst, T. and Studd, K**.** Extending computational models of abstract motion with movement qualities. MOCO '15 (2nd International Workshop on Movement and Cognition), Vancouver, BC. ACM. 2015

A34. *** Feng,** C., Bartram, L. and Gromala, D. The Affective Affordance of Motionscapes. IEEE VisAP 2014, Paris, France. 2014

A35. * **Feng, C**., Bartram, L. , Riecke, B. Evaluating affective features of 3D motionscapes. ACM Symposium on Applied Perception, Vancouver, BC. 2014

A36. ***Moura, D.** and Bartram, L. Investigating Players' Responses to Wayfinding Cues in 3D Video Games. Extended Proceedings of ACM CHI 2014, Toronto, Ontario, May 2014. 2014

A37. ***Maranan, D.S,** Fdili Alaoui, S., Schiphorst, T., Pasquier, P., **Subyen, P**. and Bartram,L. Designing for movement: evaluating computational models using LMA effort qualities. In *P*roceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI '14). ACM. Toronto, Canada May 2014 , 991-1000. 2014

A38. ***Sun, M**. and Bartram, L. Energy Conservation Game: Exploring Alternative Visualizations for Residential Energy Use, Proceedings of GRAND 2014, Ottawa, Ontario. 2014

A39. ***Makonin, S.,** Gill, B., Gill, R, Clapp, A., Flores, L, Bartram, L. A Consumer Bill of Rights for Energy Conservation, IEEE IHTC 2014. 2014

A40. C. Neustadter, L. Bartram and **A. Ma.** Everyday Activities and Energy Consumption: How Families Understand the Relationship. Proceedings of the SIGCHI Conference on Human Factors in Computing Systems (CHI 2013), Paris. 2013

A41. ***Maranan, D.S**., Schiphorst, T., Bartram, L., & Hwang, A.. "Expressing technological metaphors in dance using structural illusion from embodied motion." *Proceedings of the 9th ACM Conference on Creativity & Cognition*. ACM. 2013

A42. ***S. Makonin**, F. Popowich, L. Bartram, R. Gill and I. Baljcic. AMPds: A Public Dataset for Load Disaggregation and Eco-Feedback Research. IEEE EPEC 2013, 2013

A43. ***D. Milam,** M. Seif el-Nasr, and L. Bartram. Visual Motion in a Railed Shooter Game: A Designer Study. *Foundations of Digital Games* 2013. 2013

A44. ***Stephen Makonin**, ***Maryam H Kashani** and Lyn Bartram**.** The Affect of Lifestyle Factors on Eco-Visualization Design. *Computer Graphics International 2012* (CGI 2012), pp 1-10. 2012

A45. ***D. Maranan**, T. Schiphorst, L. Bartram and A. Hwang. Expressing Technological Metaphors in Dance Using Structural Illusion from Embodied Motion. *ACM Creativity and Cognition* 2013. 2013

A46. ***M. Lockyer** and L. Bartram**.** "The aMotion Toolkit: Painting with Affective Motion Textures". *Proceedings of Computational Aesthetics (CAe 2012)*, Eurographics, pp. 35-43. 2012

A47. ***D. Milam,** M. Seif El-Nasr, L. Bartram**, B. Aghabeigi,** and **P. Tan,** Similarity in Visual Designs: Effects on Workload and Performance in a Railed-Shooter game, in 11th *International Conference on Entertainment Computing (ICEC*), Bremen, Germany 2012

A48. ***D. Milam**, M Seif el-Nasr, ***D. Moura** and L. Bartram. Effect of Camera and Object Motion on Visual Load in 3D Games. *International Conference on Entertainment and Computing (ICEC 2011).* 8 pages 2011

A49. ***S. Makonin,** P. Pasquier and L. Bartram. Elements of Consumption: an abstract visualization of household consumption. In *Proceedings of the 11th International Symposium on Smart Graphics (SG'11)*. LNCS, vol 6815, pp 194-198. Springer, Heidelberg. 2011

A50. L. Bartram, M. Stone and ***B. Cheung**. The effect of color and transparency on the perception of overlaid grids. IEEE Conference on Visualization 2011, Rhode Island 2011

A51. ***M. Lockyer**, L. Bartram and B. Rieke. Simple Motion Textures for Ambient Affect. In *Proceedings of Computational Aesthetics 2011 Eurographics Conference on Computational Aesthetics in Graphics, Visualization and Imaging, Cae'11*, Vancouver, BC, Canada. 8 pages. **Winner, Best Paper.** 2011

A52. **Subyen, P., * Maranan, D.** S., Schiphorst, T., Pasquier, P., Bartram, L. EMVIZ: The Poetics of Movement Quality Visualization. In *Proceedings of Computational Aesthetics* 2011

2011 Eurographics Conference on Computational Aesthetics in Graphics, Visualization and Imaging, Cae'11, Vancouver, BC, Canada. 8 pages.

A53. L. Bartram**, *J. Rodgers** and R. Woodbury**.** Smart Homes or Smart Occupants? Supporting Aware Living in the Home. *Proceedings of IFIP INTERACT 2011*, Lisbon, Portugal, pp. 52-65. 2011

A54. L. Bartram and R. Woodbury. Smart Homes or Smart Occupants? Reframing Computational Design Models for the Green Home. *Proceedings of the AAAI Spring Symposium*, Mar 2011, Palo Alto, CA. 8 pages 2011

A55. ***K. Kozlova**, **R. Sheikholeslami**, L. Bartram, R. Woodbury. "Graph Visualization in Computer-Aided Design. An Exploration of Alternative Representations for GenerativeComponents Symbolic View". *Proceedings of the 16th International Conference on Computer Aided Architectural Design Research in Asia* (CAADRIA), 27-29 April 2011. 10 pages 2011

A56. .L. Bartram and ***A. Nakatani**. What Makes Motion Meaningful? Exploring the affective properties of abstract motion, *Proceedings of Pacific Symposium in Image and Video Technology*, 2010., pp. 468-474 2010

A57. ***M. Erfani Joorabchi**, **A. Dalvandi**, **H. Seifi**, L. Bartram, and C. D. Shaw . Visualizing Search Results: Evaluating an Iconic Visualization, Proceedings of VDA 2010 Conference on Visualization and Data Analysis 2010 , San Jose, California, January 18-21, 2010. 8 pages. 2010

A58. **Rodgers, J.,** & Bartram, L. (2010). Residential resource use feedback technology: A framework for design. *Proceedings of the GRAND (Graphics, Animation, and New Media) Conference 2010* 2010

A59. Thün G., Velikov K., Lee Ivan YT, Lomanowski A., and Bartram L. DReSS: A climate and occupant responsive residential envelope system. Proceedings of CISBAT 2011, Lausanne, Switzerland 2011

A60. Kathy Velikov and Lyn Bartram. North House: Developing Intelligent Building . Technology and User Interface in Energy Independent Domestic Environments. In *Architecture, Energy and the Occupant's Perspective, PLEA 2009.* 2009

A61. Bartram, L. and ***Nakatani, A**., 2009, May. Distinctive parameters of expressive motion. In *Proceedings of the Fifth Eurographics conference on Computational Aesthetics in Graphics, Visualization and Imaging* (pp. 129-136). Eurographics Association. 2009

A62. Stone, M., & Bartram, L. Alpha, contrast and the perception of visual metadata. In *Color and Imaging Conference* (Vol. 2008, No. 1, pp. 355-359). Society for Imaging Science and Technology. 2008

A63. **Yim, J.D**., Shaw, C.D. and Bartram, L., 2009, January. Musician Map: visualizing music collaborations over time. In *Visualization and Data Analysis 2009* (Vol. 7243, p. 72430A). International Society for Optics and Photonics. 2009

A64. ***Berry L**, Bartram L, Booth KS. Role-based control of shared application views. *Proceedings of the 18th annual ACM symposium on User interface software and technology*, pp. 23-32. ACM. 2005

A65. Bartram, L., Uhl, A. and Calvert, T., 2000. Navigating complex information with the ZTree. *Proceedings of Graphics Interface* (pp. 11-18). 2000

A66. Ware, C., Neufeld, E and Bartra, L. Visualizing Causal Relations. Proceedings of IEEE Information Visualization. Vol. 99 1999

A67. Bartram, L. Can motion increase user interface bandwidth in complex systems?. IEEE International Conference on Systems, Man, and Cybernetics,. Vol. 2. IEEE, pp 1686-1692 1997

A68. Bartram, L., Ho, A., Dill, J., & Henigman, F. The continuous zoom: A constrained fisheye technique for viewing and navigating large information spaces. In Proceedings of 1995

the 8th annual ACM symposium on User interface and software technology (pp. 207-215). ACM.

A69. Preim, B., Ritter, A., Strothotte, T., Pohle, T., Forsey, D. R., & Bartram, L.. Consistency of rendered images and their textual labels. In Proc. of CompuGraphics (Vol. 95, pp. 201-210). 1995

A70. Bartram, Lyn, Frank Henigman, and John Dill. The Intelligent Zoom as metaphor and navigation tool in a multiscreen interface for network control systems. Systems, Man and Cybernetics, Vol. 4. IEEE, 3122-3128. 1995

A71. Bartram, L., Ovans, R., Dill, J., Dyck, M., Ho, A., & Havens, W. S. (1994). Contextual assistance in user interfaces to complex, time-critical systems: The intelligent zoom. Graphics Interface 1994. 1994

A72. Dill, J., Bartram, L., Ho, A., & Henigman, F. (1994, October). A continuously variable zoom for navigating large hierarchical networks. IEEE International Conference on Systems, Man, and Cybernetics, (Vol. 1, pp. 386-392). IEEE. 1994

A73. Schaffer, D., Zuo, Z., Bartram, L., Dill, J., Dubs, S., Greenberg, S., & Roseman, M. Comparing fisheye and full-zoom techniques for navigation of hierarchically clustered networks. In Graphics Interface (pp. 87-87). Canadian Information Processing Society. 1993

Short Papers/Posters (archival) (2-4 pages, peer-reviewed)

S1. ***Patra, A**., Bartram, L. and Stone, M. Affective Color Palettes in Visualization. Extended Proceedings of IEEE Information Visualization 2016. **Winner, Best Poster**. 2016

S2. ***M. Lockyer**, L. Bartram, t. Schiphorst and K. Studd. Computationally Modeling Movement Qualities. Computational Aesthetics 2015, Istanbul. Eurographics 2015

S3. **E. Cramer,** L. Bartram and **J. Warren**. Discrepancies in the Intention and Interpretation of Sketchy Visualizations. IEEE Visualization 2015, Chicago 2015

S4. ***D. Huang**, M. Tory and L. Bartram. Data in Everyday Life: Visualizing Time-Varying Data on a Calendar. IEEE Visualization 2014, Paris. 2014

S5. L. Bartram. Policy, Permitting and Prototyping: the Challenges of Implementing Change. Engineering Sustainability 2011, Pittsburgh, PA. 3 pages. 2011

S6. L. Bartram and ***J. Rodgers**. Sustainability Is More Than Green Buildings. Engineering Sustainability 2011, Pittsburgh, PA. April 2011. 2011

S7. ***** **J. Rodgers**, L. Bartram. "Visualizing Residential Resource Use: A Framework for Design. Proceedings of InfoVis 2010. 2010

S8. ***** **J. Rodgers,** L. Bartram. ALIS: An Interactive Ecosystem for Sustainable Living." Proceedings of UbiComp 2010. 2010

S9. ***** **J. Rodgers**, L. Bartram, *J. Fan. Ambient and Artistic Visualization of Residential Resource Use," Proceedings of Graphics Interface, 2010. 2010

S10. **Y. He, X. Yan** and L. Bartram. Spatial Frequency for Image Search. Poster, ACM Conference on Applied Perception and Visualization in Graphics, (APGV) 2008. 2008

S11. L. Bartram and M. Stone. Characterising Subtle Grids., IEEE Visualization 2007. **Winner, Best Poster** 2006

S12. L. Bartram, M. Stone and D. Gromala. Great Grids: How and Why. Applied Perception in Computer Graphics and Visualization 2006. 2006

S13. L. Bartram and **N. Sawadsky**. Dynamic Fingerprints: Improving the Usability of Peer-to-Peer Authentication. Short paper, ACM Workshop on Wireless Security, 2003 2003

Short papers (peer-reviewed)

S14. ***Huang, D.,** Bartram, L and Tory, M.. Supporting Varying Attentional Demand in Personal Visualization and Personal Visual Analytics. Workshop on Perspectives on Visual Analytics, ACM Conference on Designing Interactive Systems (DIS 2014). 2014

S15. ***Milam, D**., Bartram, L., Seif El-Nasr, M., Similarity in Visual Designs: Effects on Workload and Performance in a Railed-Shooter game. Foundations of Digital Games (Raleigh, NC, 2012) Workshop Design Patterns in Games — 2012

S16. ***Milam, D**., Bartram, L., Seif El-Nasr, M., Design Patterns of Focused Attention. Foundations of Digital Games (Raleigh, NC, 2012) Workshop Design Patterns in Games — 2012

S17. ***Milam, D**., Bartram, L., Seif El-Nasr, M., Investigation of Expertise and Visual Balance in a Railed- Shooter game. Foundations of Digital Games (Raleigh, NC, 2012) Play Experience Workshop – Reconciling PX Methods — 2012

S18. ***Milam, D**., Bartram, L, Seif El-Nasr, M., Correlation of eye fixation and pupillometry metrics with play performance in a Railed-Shooter game. Foundations of Digital Games (Raleigh, NC, 2012) Play Experience Workshop – Reconciling PX Methods — 2012

S19. L. Bartram, ***J. Rodgers** and **K. Muise**. Supporting Sustainable Living: Aware Homes And Smart Occupants. Workshop on Ubiquitous Computing for Sustainable Energy, Ubicomp 2010, ACM. — 2010

S20. L. Bartram. Designing support for managing critical infrastructure interdependencies in emergencies. Workshop on HCI For Emergencies, ACM CHI 2008 — 2008

S21. L. Bartram. Designing for Sustainable Living: Challenges from the Field. ACM CHI Workshop on HCI, Politics and the City, CHI 2011. — 2011

S22. L. Bartram. Designing support for managing critical infrastructure interdependencies in emergencies. Workshop on HCI For Emergencies, ACM CHI 2008 — 2008

S23. L. Bartram. Designing Transparent Overlays. Workshop on Design, Vision and Visualization. IEEE Visualization 2008. — 2008

In submission

A74. ***Lim, V**., Bartram, L., Funk, M., and Rauterberg, M. To Eat or Not to Eat: An evaluation of impacts of Eco-feedback in a Student Residence. *In submission, Design Studies.* — 2018

Projects, Systems and Installations

P1.	The Water Garden. Interactive web-based game for teaching middle school students about residential water use. In use by Pacific Institute of Climate Solutions in SFU Science outreach programs for middle school.	Online Game PICS Science Alive!	2017
P2.	Calvis: the data-enriched calendar. This work with Dandan Huang and Melanie Tory explores how personal data (fitness, energy) can be integrated with Google Calendar to provide meaningful information with contextual framing. Note: this work resulted from initial work that generated a patent with an energy analytics firm.	Online prototype: part of ENGAGE project	2016
P3.	The Energy Tree Game. Interactive web-based game for teaching middle school students about residential energy use. This game is being used for science education outreach by the Pacific Institute for Climate Solutions and is now part of a Surrey-wide initiative as take home materials for a middle school energy curriculum.	Online game: PICS City of Surrey	2016-
P4.	Tracking the BC transit debate: A Twitter visualization (with Luciano dos reis Frizzera)	Online demo	2015

P5.	L. Bartram and ***M. Sun**. Innovative visualizations for understanding home energy use. Interactive exhibit, National Museum of Science and Technology, Ottawa, March 2014 – Oct 2014.	Interactive exhibit	2013-14
P6.	***J. Rodgers** and L. Bartram. The Ambient Canvas. Ambient energy displays for residential energy use.	In-home display	2010
P7.	L. Bartram, ***** **J. Rodgers**, K. Muise and **R. Mackenzie**. The Aware Living Interface System (ALIS): Version 2. Interactive Energy Management System for PC, mobile and embedded home use.	System in West House	2011
P8.	L. Bartram, R. Woodbury, D. Ramslie. West House Living Lab 2011, version 2. A sustainable laneway house. West House was moved and extended from its original construction. It is a multi-year project with the City of Vancouver, BC Hydro and a variety of industrial contributors and is a multi-year tenanted living lab. It incorporates renewable energy technologies, water and gas metering, smart metering and interactive technologies, and social media outreach. • Community outreach on an ongoing basis with public and targeted • Technology and research space for industrial partners, public utilities and my research group	Installation/demo Note: this project is now under review for moving to another site	2011-2019
P9.	Bartram, R. Woodbury, D. Ramslie. West House SFU sustainable laneway home, version 1. West House was built in partnership with the City of Vancouver, BC Hydro and a variety of industrial contributors. Showcased at the 2010 Olympics (>66,000 visitors)	Installation/demo	2010
P10.	***** **J. Rodgers**, **K. Muise,** L. Bartram, **Y. He** and **R. Mackenzie**. The Aware Living Interface System (ALIS): Version 1. Interactive Energy Management System for PC, mobile and embedded home use.	system	2009
P11.	G. Thun, K. Velikov, L. Bartram, R. Woodbury, A.Fung. North House. A fully functional, zero-footprint, solar house . 4th place, 2009 International Solar Decathlon, Washington, DC (> 65,000 visitors)	installation	2009
P12.	M. Lockyer, Kinetic art. (work done with L. Bartram and P. Pasquier)	Public art installation, Chile	2011

Patents

- L. Bartram and N. Sawadsky. Codeword-Enhanced Peer-to-peer Authentication. US Patent # 7,293,284 — 2008
- L.R. Bartram, M. Chesser, N. Sawadsky, S. Schumacher and M. Blackstock. Peer-to-peer authentication for real-time collaboration**.** US Patent #10245303 — 2009
- R. Dembo and L. Bartram. System and Method For Generating, Processing And Displaying Data Relating To Consumption Data With An Application. US Patent Application, filed Sept. 14, 2011; revised Sept. 14, 2012 — 2012

- L. R. Bartram, M. Blackstock and H.G. Spaay. Method for context based discovery and filtering of portable collaborative networks. US Patent # 7613772B2 — 2009

Invited talks

• Simulation games for encouraging sustainable living	World Environmental Education Conference, Vancouver, BC	2017
• From tool to media: the democratization of visualization	Graphics Interface 2017, Edmonton, Canada	2017
• Visualizing energy in eco-feedback: Successes, failures and challenges. Keynote Address.	Non-Intrusive Load Monitoring Conference, Vancouver	2016
• Big Data, Social Computing and Civic Engagement: What can visualization and digital humanities learn from each other?	SPIE Human Vision and Electronic Imaging 2015	2015
• Visualization for Sustainable Behaviour	Tableau Software	2014
• Technology and Media for Sustainable Homes	NSERC	2014
• Challenges in Designing for Residential Sustainability	Urban Research Program, Griffith University, Australia	2013
• Human-Centred Systems for Sustainable Living	Royal Melbourne Institute of Technology, Australia	2013
• Chasing the Negawatt	FortisBC	2013
• Human-Centred Systems for Sustainable Living: Challenges.	AT&T Bell Labs, New Jersey	2011
• Designing for Sustainable living: Challenges from the Field.	ACM CHI 2011, Panel on Sustainability and HCI	2011
• Case Studies from Human-Centred Systems for Sustainable Living	Pacific Institute for Climate Solutions Public Lecture Series	2011
• What makes motion meaningful?	Nanyang Technological University, Singapore	2010
• Human-Centered Technology for Sustainability	Pulse Energy, Vancouver	2009
• Designing Technologies for Sustainable Living	Queen's University, ON	2010
• Human-Centred technologies for Conservation	BC Hydro POWER SMART	2010
• Whisper, Don't Scream: Visualization and Perception in Crowded Information Spaces	INRIA Labs, Paris	2008

Research Funding

Please note this funding does not include substantial in-kind donations that have been provided. These are detailed after.

- Affective Techniques for Personal Visualization and Personal Visual Analytics — NSERC Discovery — 2017-2021
  - Annual: 23000 Total: **115000**

• Affective interfaces for social robots for clients with developmental disabilities., with Developmental Disabilities Association. • Total: **15000**	MITACS	2017
• Personal Visualization for Residential Energy Analytics. Ecotagious Inc • Total: 25000	NSERC Engage	2016
• Simulation games for understanding water and energy use • Total **5000**	PICS	2014,2017
• VPR Research grant • Annual: 5000 Total: **20000**	Internal grant	2011-2014
• Aesthetic Visualization and Gaming Techniques for Energy comprehension, BC Hydro • Total: **15000**	MITACS	2014
• Greenest City Conversations Project • Total: **30000**	MITACS	2012
• Greenest City Conversations Project • Total: **9234**	PICS	2013
• Ambient and Ubiquitous Visualizations for Energy Efficiency • Annual: 14000 Total: **70000**	NSERC Discovery	2012-2017
• Two grants within the GRAND NCE: • . Human-Centred Technologies for Sustainable Living - project Co-Leader; Project Lead as of 2011 • .Aesthetics and Visualization - project co-lead • 2010: 55,000 (maximum) • 2011: 49,500 (maximum grant) Total: **275,000**	External Grant GRAND NCE	2010-2014
• West House WED • Funding: Annual: **354,000** Total: **354,000** • Involvement: Joint Investigator Collaboration: This funding supported the construction of West House, showcasing it at the 2010 Olympics, and moving it to its legacy site. • Institution of Co-Investigator(s): This grant is in partnership with Professor Rob Woodbury	External Grant WED	2010
• West House BC Hydro • Total: **25000**	External Grant BC Hydro	2011
• West House BC Hydro • Total: **50,000** • Co-investigator Rob Woodbury	External Grant BC Hydro	2010
• West House City of Vancouver • Total: **75000** • Co-investigator: Rob Woodbury	External grant City of Vancouver	2010-2011
• Mobile Applications for Energy management	External Grant	2010

• Total **7320**	Nokia Canada	
• Motion Frameworks for Physical Expression • Total **15000**	External Grant MITACS	2010
• User Experience Design and Interactive Interfaces to Support Energy Conservation • Total **165000** • Joint Investigator with Rob Woodbury ; research lead	External Grant MITACS/ BC Hydro City of Vancouver	2008-2011
• Visual Histories of Decision Processes for Business Intelligence • Doctoral fellowship for Karine Kozlova • Annual **35000** Total **105000** • Karine was jointly supervised by me and Rob Woodbury	Graduate fellowship SAP	
• Meaning from Motion for Interaction and Visualization • NSERC /CC Canada New Media Initiative (strategic grant) • Annual **122,000** Total **368,860** • Principal Investigator • Magy Seif el-Nasr co-investigator	External grant NSERC Strategic	2009-2012
• User interfaces for complex information environments • Annual 20000 Total **100000**	External grant NSERC Discovery	2006-2010
• Visualizing Causality in Context • Total: **10,000**	Internal grant President's Research Grant	2006-2007
• Startup • Total **60000**	Internal	2005-2006

Graduate Supervision

Name	Degree	Project/Thesis Title	Status	Began	Completed
Senior					
Olumoye Mosud	Post doc	Digital Governance for Cities in Emerging Economies	Delayed, Pending visa	Fall 2018	
Badru Siddique	MSc	Final project, Masters in Big Data (CS)	completed	2017	2017
Zeynap Irem Sismanturk	MSc	Physical Visualization for residential energy analytics	active	2017	
Stan Nowak	MSc	Network Techniques for Visual Analytics	active	2017	
Xavier Wu	MSc	Social Interaction for Robots for the Developmentally Disabled	active	2016	
V. Lim, TU/e	Ph.D	(external supervisor of SFU project)	completed	2017	2017

Name	Degree	Project/Thesis Title	Status	Began	Completed
Elham Saadatian	Post Doc	Occupant Experience in Green Buildings	completed	2017	2017
Jordon Milev	MA	Visualization Design for Understanding Language	withdrawn	2015	
Yuhang Wu	MSc	Sustainability Games for Water Conservation	completed	2015	2018
Luciano dos Reis Frizzera	PhD	Social Media and Smart Cities	departed	2014	Double body issue
Abhisekh Patra	MSc	Visualization Approaches to Home Resource Consumption	competed	2014	2017
Sun, Mengting	M.Sc.	Informative Art Approaches to Visualizing Energy Consumption	completed	2011	2014
Moura, Dinara	Ph.D.	Wayfinding in Games	completed	2010	2017
Milam, David	Ph.D.	The Effect of Motion in Visual Load in Games	completed	2008-1	2013
Feng, Chao	M.Sc.	Affective Motionscapes	completed	2010-3	2014
Lockyer, Matt	Ph.D.	Motion Textures for Ambient Affect	On leave	2010	
Evan Dickinson	M.A.	Mapping Experience: Interactive Tools to Encourage Cycling	Completed	2009-3	Sept 2012
Rodgers, Johnny	M.Sc.	Ambient and Artistic Visualization for Home Energy Feedback	Completed	2008-3	2011
Nakatani, Ai	M.Sc.	Perceptual and Interpretative Properties of Meaningful Motion	Completed	2008-1	2010
Cheung, Billy	M.Sc.	Transparency in Visualization	Completed	2007-3	2011
Paulin, C. Andrew	M.Sc.	Reciprocity: Construction Of Identity And Social Experiences In Online Environments	Completed	2006-1	2009
Jiang, Coco	M.Sc.	An Information Model for Critical Infrastructure Interdependencies	Completed	2005-1	2009
Yao, Miao	M.Sc.	Visualizing Causality in Context Using Animation	Completed	2005-3	2007-3

Senior Co-Supervision

Name	Degree	Project/Thesis Title	Status	Began	Completed
Huang, Dandan	PhD,CS, University of Victoria	With M. Tory, CS, Uvic	completed	2011	2016
Makonin, Stephen	Ph.D. Computing Science	With F. Popowich, Computing Science	completed	2010-3	2014
Kozlova, Karine	Ph.D.	with R. Woodbury,	completed	2010	2016
Maryam Haghighat Kashani	Ph.D.	with R. Woodbury	Active	2010-3	On leave, returning 2018
Maranan, Diego Silang	M.A.	With T. Schiphorst	completed	2009-3	2012

Graduate Committees

Name	Degree	Status	Began	Completed
April Wang	MSc Computing	active	2016	
Maha el Meseery	PhD	deceased	2015	
Felwa Abokhudair	PhD	completed	2011	2018
Dishen Li	MSc	completed	2015	2018
Ankit Gupta	PhD	active	2013	
Abinav Sood	MSc Computing	completed	2012	2014
Mina Soltangheis	MSc	completed	2012	2015
Fatemeh Salehian Kia	PhD	completed	2014	
Mahshid Baraghoush	MSc	Completed	2009	2012
Daniel Hawkins	MSc	Completed	2013	2015
Coates, Shannon	M.A.	Completed	2009-1	2010-3
Qian, Cheryl	Ph.D.	Completed	2007-1	
Qi Zhu	MSc			
Yordan, Ulyana	Ph.D.	Withdrawn	2006-3	
Ivanov, Alex	Ph.D.	Completed	2005-3	2009-3
Ivanov, Alex	M.Ap.Sc.	Completed	2005-3	
Mandryk, Regan	Ph.D.	Completed		2005-3

Name	Degree	Status	Began	Completed
Tory, Melanie	Ph.D.	Completed		2004-2
Moise, Adrian	Ph.D.	Completed		2003-3
Lau, Felix		Completed		2000-3

Teaching

Courses developed and taught. When a course is listed as *regular*, it indicates that I teach it at least once a year.
IAT courses

- IAT 355 Introduction to Visual Analytics — regular
- IAT 432 Design Evaluation Methods — regular
- IAT 351 Advanced Human-Computer Interaction — 2006-2012, 2014
- IAT 201 Introduction to Human-Computer Interaction — 2006-9
- IAT 814 (Graduate) Visualization and Visual Analytics. *Note: this course is offered in both IAT and as a part of two CS professional graduate programs: MSc Big Data and MSc Visual Computing.* — regular
- IAT 402-5 Senior Design Capstone — 2009-10

External courses

As the Director of the Vancouver Institute of Visual Analytics, I also design, oversee and/or deliver external courses to a wide variety of clients in different sectors, most recently education, business and health, in the design and use of visual analytics approaches for dealing with diverse data challenges. These courses range in timing and scope from ½ day introductions to full 13-week credit offerings. Recent and upcoming examples include:

- APPP 505: a 13-week course offered in UBC's Masters of Engineering Leadership (professional degree, Faculty of Commerce). I redesigned and provisioned this course, finding the personnel to deliver it (1 instructor, 2 TAs);
- Introduction to Visualization and Visual Analytics: ½ day overview for Coastal Health Authority; developed and delivered
- Basic Visual Analytics: ½ introduction for IC-IMPACTS UBC Summer School (India-Canada program); developed and delivered
- Visualization and Visual Analytics theory and Practice: 2 day course/workshops at CANVAS, the Canadian Association of Visual Analytics Summer School; developed and delivered

Service

Internal (SFU)

- Director, SIAT Graduate Certificate in Visual Analytics program 2017-
- Director, Vancouver Institute of Visual Analytics, KEY, 2017-
- Big Data Initiative (KEY) Management Committee 2017-
- Provost's Search Committee, SFU Dean of Lifelong Learning 2018
- SFU Senate Faculty Senator 2015-
- Senate Committee on University Honours 2016-
- Senate Committee on Continuing Studies 2016-
- Mechatronics Tenure and Promotion Committee 2015-18
- SIAT Graduate Program Chair 2014-2017
- SIAT Tenure and Promotion Committee 2014-15, 2016-717
- SIAT Infrastructure Committee 2015-
- Steering Committee, SFU Climate Institute 2014-
- SIAT Programming Advisory Committee 2015-16
- SIAT Graduate Program Committee 2012-3, 2017-
- SIAT Director's Advisory Committee 2014-
- SFU representative, Collaboration and Visualization Steering Committee, WESTGRID 2005-2009 2005-2009

External

- Eurographics Expressive Conference Steering committee 2015-
- Conference Co-Chair, Eurographics Expressive 2016, Lisbon 2016
- Program Committee, VisAP, IEEE Visualization (arts+vis) 2015-17
- Papers Chair, Eurographics Expressive 2017 2017
- Steering Committee, Research Theme: Energy Efficiency in BC's Built Environment, Pacific Institute for Climate Solutions 2014-
- Steering Committee, Graphics Interface (CHCCS), 2008-
- Project Lead, Human-Centred Technologies for Sustainable Living, GRAND-NCE 2010-2015
- Green Building Advisory Council, City of Vancouver 2010-12
- Interactivity co-Chair, CHI 2011 2011
- General Co-Chair, Graphics Interface, 2008 2008
- SFU representative, Collaboration and Visualization Steering Committee, WESTGRID 2005-2009
- Program Committee, IEEE InfoVis 2006-2008, 2010-14
- Papers Committee, Graphics Interface, 2002, 2007, 2014 2007, 2002

- Program Committee (workshops Co-chair), Computer Supported Cooperative Works (CSCW), 2006 — 2006
- Mentor, Banff IME Virtual Project Lab (in conjunction with the Canadian Film Centre) — 2005
- Co-editor, special issue of International Journal of Human-Computer Studies, 2002 — 2002
- Program Committee, CHI 96 — 1996
- Program Committee, International Conference on Computer Graphics and Interactive Techniques: (SIGGRAPH) 96 — 1996
- Active reviewer for ACM CHI, IEEE VisWeek, Computational Aesthetics, ACM APGV, IEEE TVCG, ACM TOCHI, Ubicomp — ongoing