

# BRIAN D. FISHER, PH.D.

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## Positions

Associate Professor (2004-) School of Interactive Arts and Technology, Simon Fraser University  
Associate Director (1999-) University of British Columbia Media and Graphics Interdisciplinary Centre  
Associate Director (1994-1998) Simon Fraser U. Institute for Human Factors & Interface Technology  
Research Associate (1996-1998) Telelearning Network of Centres of Excellence, Simon Fraser U  
Research Professor (1994) Rutgers U. Center for Cognitive Science (RuCCS)  
Postdoc (1991-1993) Institute for Robotics and Intelligent Systems I, U. of Western Ontario

## Education

Ph.D. Experimental Psychology 1991, University of California at Santa Cruz  
B.A. in Biology (Physiology/Biochemistry) 1979, Hiram College

## Courses taught

Cognition, Learning, and Collaboration (IAT 812)  
Quantitative Research Methods and Strategies (IAT 802)  
Interaction Science (IAT 855, with John Dill)  
Cognition in the Design of Interactive Systems (IAT 302)  
Usability in Interactive Environments (SFU IAT 201)  
Cognition in Design Science (SFU IAT 200)  
Implementing e-Business in the Organization (UBC BAIT 513)  
Preparing the Business Plan (UBC BAEN 504, with Tarrnie Williams)  
Entrepreneurship (UBC BAEN 500)  
Human Computer Interaction (UBC CPSC 444)  
Human-Computer Interaction in Engineering Design (UBC ECE 418, with Sid Fels)  
Human Machine and Human Computer Interaction (SFU KIN 383, with Tom Calvert)

## Current grants and contracts

**Visual Analytics for Engineering Data.** Boeing contract, 3 investigators, \$1.33M/3 years, Shared between SFU and UBC MAGIC, 50% to SFU (Start date Oct 1 2007, pending final approval)  
**Information systems for skilled cognition & communication** (sole investigator) NSERC Discovery, \$96k  
**Visual Analytics for Safety & Security** (principal investigator) NSERC Strategic, 2007-2009, \$459k  
**Visual Analytics – Science and Application** Peter Wall Institute for Advanced Research Exploratory Workshop Grant, 18,340  
**HOT Admin: Human Organization & Technology Improvement of Security Administration** (co-

investigator w. Konstantin Beznosov) NSERC Strategic, 2006-2008, \$459k

**Canadian Design Research Network** (Rob Woodbury, PI) NSERC Network, \$400k

## External Collaborations

**Kaleidoscope** (co-investigator) EU 6th Framework Program.

**Pacific Regional Visual Analytics Centre** (co-investigator w. Thomas Furness) 2006-2009, \$1.5m USD

**Purdue Regional Visual Analytics Centre** (external collaborator, David Ebert PI) 2006-2009, \$3m USD

## Recent contracts and grants

**The Power of the Arts – BC Portfolio Requirements** (co-investigator w. Judy Dallas) Inukshuk Fund, \$80k

**SFU Wendy McDonald Endowed Research Fellowship** (sole investigator), \$5k

**Information System Design for Human Cognition and Communication.** (sole investigator) NSERC Operating Grant, \$68k

**Closing the Loop in Immersive CAD** (principal investigator) BC Advanced Systems Institute Industrial Partnership Program and General Motors of Canada. GM/ASI \$67k

**New Media Collaboration Studies Network** (co-investigator w. Sara Diamond) SSHRC Network grant, \$50k

**BEST- Banc d'Essai de Services de liaisons optiques pour un environnement de Téléformation doctorale** (co-investigator w. Jacqueline Bourdeau) CANARIE contribution \$499,951, total \$999,902.

**Flow Keeper** Research contract (co-investigator w. Sidney Fels) Nissan Motor Company, \$100k

**Smart Seat** Research contract (co-investigator w. Sidney Fels) Nissan Motor Company, \$100k

**Collaborative Visualization for Time & Safety-critical Situations.** (co-investigator w. Kellogg Booth, 352k

**Telelearning Network of Centres of Excellence** (Linda Harasim and Tom Calvert P.I.s) \$15M

## Other affiliations

**Adjunct Professor, Computer Science** University of British Columbia (2000- present)

**Associated Faculty, Psychology** University of British Columbia (2000- present)

**Adjunct Professor, Commerce** University of British Columbia (2000-2003)

**Adjunct Professor, Kinesiology** Simon Fraser University (1996-2003)

**Investigator,** UBC Brain Research Centre (1999-present)

**Associate,** UBC Institute for Computing, Intelligent and Cognitive Systems: (2001-present)

## Service to Academic Community

**Co-organizer, 2007 Peter Wall Institute Workshop on Visual Analytics – Science and Application**

**Organizer, 2007 Cognitive Science Society Symposium on Cognitive Science in the Design of Graphical Images and Interfaces**

**Area chair for Cognitive and Perceptual Science, Visual Analytics Software and Technology 2006, 2007**

**Chair, Smart Graphics conference committee 2006**

**Conference committee, Smart Graphics 2003-2005**

Conference committee, BCNet 2003-2005

Program committee, ED-MEDIA --World Conference on Educational Multimedia, Hypermedia & Telecommunications 1999-2005

Program committee, IEEE Symposium on Information Visualization 2002, 2003

Cognitive Science Society Conference committee, Invited Symposia Subcommittee, and Tutorial and Workshop Planning Subcommittee 1999

Board member New Ventures BC Association (business plan competition, \$60,000 prize)

UBC Faculty of Commerce Bureau for e-Business Research. 2000-2003

Constraintworks Inc. Advisory Board (2001-2003)

ThoughtShare Communications Inc. Advisory Board (2000-2003)

Grant reviewer for Natural Sciences and Engineering Research Council of Canada, Hampton Foundation

Reviewer for ACM CHI, IEEE Infovis, Cogsci, Computer Graphics and Applications, New Interfaces for Musical Expression, Graphics Interface, EuroCogsci, ICEC, Eurographics, Transactions on Applied Perception, International Conference on Advanced Learning Technologies, International Conference on Information & Communication Technologies, International Journal of Human-Computer Studies, User Interface Software and Technology, Computational Intelligence, Psychological Science, Computational Aesthetics, Applied Perception in Graphics and Visualization.

## Membership and awards

Member IEEE Computer Society, ACM, SIGCHI, SIGGRAPH, Cognitive Science Society

Research Associate Award, U.S. National Research Council 1991 (NASA Ames Spatial Displays Group).

Outstanding teaching award, University of California, 1991

## Books and chapters

Contribution to "The Science of Analytical Reasoning: Perception and Cognition". In J. Thomas & K. A. Cook (Eds.), *Illuminating the Path-- Research and Development Agenda for Visual Analytics*: IEEE Press.

Butz, A. Fisher, B.; Krüger, A.; Olivier, P. (Eds.) (2007). *Lecture Notes in Computer Science: Smart graphics 7th international symposium*, Springer-Verlag, Berlin, Heidelberg, New York.

Butz, A. Fisher, B.; Krüger, A.; Olivier, P. (Eds.) (2006). *Lecture Notes in Computer Science: Smart graphics : 6th international symposium*, Springer-Verlag, Berlin, Heidelberg, New York.

Butz, A. Fisher, B.; Krüger, A.; Olivier, P. (Eds.) (2005). *Lecture Notes in Computer Science: Smart graphics : 5th international symposium*, Springer-Verlag, Berlin, Heidelberg, New York.

Fisher, B.D., Agelidis, M., Dill, J., Tan, P., Collaud, G., & Jones, C. (1997). CZWeb: Fish-eye views for visualizing the World Wide Web. In M.J. Smith, G. Salvendy & R. J. Koubek *Design of Computing Systems: Social and Ergonomic Considerations: Volume 2, Advances in Human Factors/Ergonomics, 21B*, pp 719-722, Amsterdam: Elsevier.

## Refereed publications (student authors in boldface)

**Botta, D.**, Werlinger, R., Gagne, A., Beznosov, K., Iverson, L., Fisher, B., & Fels, S. (2007) Towards Understanding IT Security Professionals and Their Tools. 16th USENIX Security Symposium., Boston MA.

- Botta, D.**, Beznosov, K., Iverson, I., Fisher, B., Fels, S., **Werlinger, R.** (2007) Studying IT Security Professionals: Research Design and Lessons Learned. Security User Studies Workshop, CHI 2007, San Jose CA.
- Botta, D. Werlinger, R., Gagné, A.**, Besnosov, K., Iverson, L. Fels, S. (2007) Towards Understanding IT Security Professionals and Their Tools. Symposium on Usable Privacy and Security, Pittsburgh, PA.
- Fisher, B. and Dill, J. (2006) New Techniques for Studying Information Visualization and Interaction. Workshop on Information Visualization and Interaction Techniques for Collaboration Across Multiple Displays, CHI 2006, Montreal.
- Kaastra, L. T.**, & Fisher, B. (2006). Affording virtuosity: HCI in the lifeworld of collaboration. *About Face: Interface Creative Engagement in the New Media Arts and HCI* (CHI Workshop). Montreal. QC.
- Sillito, J.** de Volder, K., Fisher, B., Murphy, G. (2005) Management of Change Tasks: An Exploratory Study. IEEE 4<sup>th</sup> International Conference on Empirical Software Engineering, Noosa Head Australia.
- Po, B.** Fisher, B. Booth, K. (2005) Comparing Cursor Orientations for Mouse, Pointer, and Pen Interaction. CHI 2005 (full paper)
- Po, B.** Fisher, B. Booth, K. (2005) A Two Visual Systems Approach to Understanding Voice and Gestural Interaction. Virtual Reality (Special Issue on Language, Speech, and Gesture) 8, 231-241.
- Lam, H.**, Fisher, B. & Dill, J. (2005) A Pilot Study of CZTalk: A Graphical Tool for Collaborative Knowledge Work. Hawaii International Conference on Systems Sciences. Hilton Waikoloa Village, Hawaii.
- Liu, G. Austen, E. L.**, Booth, K.S. Fisher, B., **Argue, R. Rempel, M.I.**, & Enns, J. (2005) Multiple Object Tracking Is Based On Scene, Not Retinal, Coordinates. Journal of Experimental Psychology: Human Perception and Performance. 31(2), Apr 2005, 235-247.
- Swindells, C., Po, B.A., Hajshirmohammadi, I., Corrie, B.**, Dill, J.C., Fisher, B.D. & Booth, K.S. (2004). Comparing CAVE, wall, and desktop displays for navigation and wayfinding in complex 3D models. In Proceedings of CGI 2004 (Computer Graphics International), Hersonissos, Crete, Greece, June 16-19, pp. 420-427.
- Fisher, Fels, MacLean, Munzner, and Rensink (2004) Seeing, Hearing, and Touching: Putting it All Together. SIGGRAPH Course, SIGGRAPH 2004, Los Angeles. ( most downloaded SIGGRAPH Proceedings paper)
- Po, B.**, Fisher, B. Booth, K. (2004) Mouse and Touchscreen Selection in the Upper and Lower Visual Fields. CHI 2004 (full paper).
- Po, B.**, Fisher, B., & Booth K. S. (2003) Pointing and Visual Feedback for Spatial Interaction in Large-Screen Display Environments. In Springer Lecture Notes in Computer Science “ Smart Graphics 2003” Heidelberg, Germany. Butz, A., Krüger, A., Olivier, P., Lexicle Ltd, York, UK (Eds.)
- Ihara, M., Kobayashi, M., and Fisher, B. (2003) Visualizing Meeting States for a Smooth Online Discussion. Graphics Interface. Dalhousie University Halifax, NS
- Gauthier, J., Fisher, B., Klawe, M. (2003) Peer Presence and Real-Time Assessment: A Symbiotic Relationship. EdMedia 2003, Honolulu, HI.
- Fels, \*Fisher, MacLean, Munzner, and Rensink ( (2003) Design of interactive multimodal media systems: Intersensory interactions and HCI. SIGGRAPH course. (\* course organizer)
- Booth, K.S., Fisher, B. **Lin, C. J., Argue, R.** (2002). “The ‘Mighty Mouse’ Multi-Screen Collaboration Tool” UIST 2002, Paris.
- Harrison, J.**, Booth K. S., Fisher, B. (2002) Experimental Investigation of Linguistic and Parametric Descriptions of Human Motion for Animation Proceedings of Computer Graphics International 2002, 1-5 July, Bradford, UK.

\*Booth, Fels, \*Fisher, MacLean, Rensink (2002) Design of interactive multimodal media systems: Intersensory interactions and HCI. SIGGRAPH course. (\* co-organizers)

Fisher, B. Graphics in the Large (Panel) Organizer: David J. Kasik, (Boeing). SIGGRAPH 2002

Fisher, B. (2002). Cognitive Science and the Design of Learning Technologies. *American Educational Research Association* New Orleans, LA

Fisher, B. (2002). Interaction Design Education at UBC. ACM SIGCHI Interactions Special Issue on Design IX.2, March. Pp 33-36

**Austen, E., Liu, G., Stevenson, A.,** Booth, K. S., Dill, J., Enns, J. T., Fisher, B., MacLean, K., & Rensink, R. (2001, June). Perceptual cognitive design: Safe changes to air traffic control. Poster presented at the Proceedings of Graphic Interface, Ottawa, ON.

Fisher, B. and Dill, J. (2000). Application of Theories of Indexical Cognition to a Web-based Workspace. American Association for Artificial Intelligence Symposium on "Smart Graphics", Stanford CA

Fisher, B. D. , Dill, J., and **Liljefors, M.** (1999). Case Study: Perceptual Cognition and the Design of an Air Traffic Control Interface. Information Visualization Workshop, Visualization 1999, San Francisco CA

**Brett, P.,** Fisher, B. D., Sloan, J. Wilson, M. and Wilson, R. (1999). The Reflective Practitioner and the World Wide Web: Seeking a New Approach to Continuing Medical Education. *Adult Educational Research Conference.*

**Bakardjieva, M.,** Campos, M., Fisher, B., **Wang, X. and Xin, M.** (1999). Communication and learning processes on-line: converging evidence from multiple perspectives (Roundtable) *American Educational Research Association.* Montreal, QC

**Xin, M.** and Fisher, B. D. (1998). Analysis of Learning Environments Using Web Server Logs. *International Conference on Computers in Education.*

**Schmidt, W.C.;** Fisher,-B.D.; Pylshyn,-W. (1998). Multiple-location access in vision: Evidence from illusory line motion. *Journal-of-Experimental-Psychology:-Human-Perception-and-Performance.*24(2): 505-525.

Fisher, B.D. (1997). Spatial indexing, sensory integration, and the design of perceptual interfaces. *Workshop on Perceptual Interfaces (UIST).*

Fisher, B.D., Conway, K., & Groeneboer, C. (1997). Virtual-U Development Plan: Issues and process. *Proceedings, ED-MEDIA and ED-TELECOM.* Calgary AB

Fisher B.D., & Pylshyn, Z. W. (1994). The cognitive architecture of bimodal event perception: A commentary and addendum to Radeau. *Current Psychology of Cognition* 13:1, 92-96.

Pylshyn, Z., **Burkell, J.,** Fisher, B., **Sears, C., Schmidt, W., & Trick, L.** (1993). Multiple parallel access in visual attention. *Canadian Journal of Experimental Psychology* 48:2, 260-283

Fisher, B.D., **Schmidt, W. A.,** & Pylshyn, Z.P. (1993). Multiple abrupt onset cues produce illusory line motion. *Investigative Ophthalmology and Visual Science,*33:4 778 (ARVO abstract).

**Spivey-Knowlton, M.,** Fisher, B. D., & Bridgeman, B. (1991). Attention and automaticity: Interaction of two modes of attention. *Investigative Ophthalmology and Visual Science,* 32:4,1040. (ARVO abstract).

**Macknik, S. L.,** Fisher, B. D., & Bridgeman, B. (1991). Flicker distorts visual space constancy. *Vision Research.* 31:12, 2057-2064

Bridgeman, B., & Fisher, B. D. (1990). Saccadic suppression of displacement is strongest in central vision., *Perception,* 19, 103 - 111.

Fisher, B., Bridgeman, B., & Biederman, I. (1990). Task differences in visual search: Does attention aid detection? *Investigative Ophthalmology and Visual Science,* 31:4, 563. (ARVO abst.)

## Invited tutorials & workshops

- Fisher, B and Dill, J. (2007) Visual Analytics: The View from Vancouver. CCISS Workshop on Visual Analytics, Carleton University, Ottawa ON
- Fisher, B. (2007) Dagstuhl Seminar in Scientific Visualization. Internationales Begegnungs- und Forschungszentrum für Informatik.Schloss Dagstuhl, Saarland, Germany.
- Fisher, B. (2005) Cognition, Sound and Vision. Bodies in Play: Shaping and Mapping Mobile Applications. Banff New Media Institute Summit.
- Fisher, B. (2005) VR--A Reality Check? (panel) VR 2005, Bonn, Germany
- Fisher, B. (2004). Collaborative Tool Design. Participate/Collaborate: Reciprocity, Design and Social Networks. Banff New Media Institute Summit.
- Fisher, B. (2004). Collaborative Tool Evaluation. Participate/Collaborate: Reciprocity, Design and Social Networks. Banff New Media Institute Summit.
- Fisher, B. (2004). Nouvelles méthodes pour l'évaluation des environnements de simulations et de jeux éducatifs (SAGE). Comment les jeux éducatifs, les simulations et les jeux de simulation favorisent-ils l'apprentissage ? ACFAS 2004, Lettres, arts et sciences humaines.
- Fisher, B. (2003). Design of Networked Environments for Cross-Disciplinary Collaboration. Banff New Media Institute Nanotechnology Workshop-- "Carbon vs. Silicon: Thinking Small/Thinking Fast"
- Fisher, B. (2002). Bridges II, a Cognitive Science Perspective. Bridges Consortium, Banff New Media Institute Human Centered Interface Project.
- Fisher, B. & Booth, K.S. (2002) Perceptual and social cognition aspects of situated displays. Workshop on Public, Community, and Situated Displays. CSCW, New Orleans LA
- Fisher, B. (2002). Joint SIGCHI/American Institute for Graphic Arts Forum on Experience Design, CHI 2002, Minneapolis Minnesota (invited speaker, Education Panel).
- Fisher, B. (2001). Technology as Dynamic Artifact and Communication Medium. Banff Centre Workshop on Cognitive Armatures and Emotion Architecture, Banff AB.
- Fisher, B. (1999). Human-Centred Design . Presentation to the Asian Pacific Economic Cooperation Experts' Meeting on Technology for Learning and Culture, Vancouver
- Fisher, B. (1998). New approaches to the design of collaborative learning environments. Workshop on HCI in Telelearning Environments, Telelearning NCE.
- Fisher, B. (1995). New Approaches to the Design of User Interfaces to Complex Systems: Applications to Supervisory Control, Multimedia and Telelearning IRIS Design and Human Interfaces Workshop.
- Fisher, B. (1992). Sensory fusion and place indexing in cognition and motor behaviour 1992 Design and Human Interfaces Workshop IRIS project B4 Vancouver British Columbia.
- Invited Speaker, Smart Graphics 2003, Hamburg, Germany.
- Lam, H.**, Fisher, B. Dill, J. (2002) CZTalk: a Graphical Tool for Online Discussion. Western Computer Graphics Symposium. Silver Star, B.C.
- Giroux, P.** and Fisher, B. (2002) FINST spatial indexing theory and its application to guidelines for knowledge representation in e-learning. E-Learn, Montreal QC.