

# Eric Brochu

Vancouver, BC, Canada  
ebrochu@cs.ubc.ca  
haikufactory.com/cv  
citizenship: Canadian

*I am a PhD candidate at UBC with several years industrial experience as a researcher and developer. My research is in Machine Learning, with a focus on Active Learning tools for user interfaces, graphics, vision, games and other media applications. I have won several major awards for my post-graduate work, and I have been also been involved in high-profile New Media projects.*

## Education

*expected completion 2010*

- PhD Candidate, Computer Science. University of British Columbia.**  
Vancouver, British Columbia, Canada  
Nando de Freitas, supervisor.  
Coursework completed with A+ average.
- 2004 **MSc, Computer Science. University of British Columbia.**  
Nando de Freitas, supervisor.  
Graduated with A+ average.
- 1998 **BSc, Computer Science. University of Regina.**  
Regina, Saskatchewan, Canada.  
Graduated with Distinction.
- 1997 **BA, English (minor in Film Studies). University of Regina.**  
Graduated with Distinction.

## Employment

- jan/09 - aug/09  
*part-time* **Senior Researcher, Worio. Vancouver, British Columbia, Canada.**  
Co-funded by Worio and MITACS to work part-time with Vancouver-based start-up. Research involved Machine Learning-based recommendation and user-modeling technologies.
- 2008  
*full-time* **Senior Researcher, Worio.**  
Took one-year academic leave to work full-time with Worio, researching and developing Machine Learning technologies for search and recommendation system.
- 2006 - 2007  
*part-time* **Researcher/Developer, Worio.**  
Developing novel Machine Learning technology for start-up using Python and C++. Also directly involved in presenting to investors, planning strategy and recruitment.
- 2002 - 2006  
*part-time* **Research Assistant, UBC/Vancouver Art Gallery. Vancouver.**  
Researching and developing Machine Learning-based projects as both MSc and PhD student. Successful projects include developing multimedia interface as part of online component of Vancouver Art Gallery 2006 Emily Carr exhibit (launched 2006), and developing novel algorithms for computer games.
- 2001 - 2002  
*part-time* **Teaching Assistant, UBC. Vancouver.**  
TA for undergrad programming courses and graduate-level Machine Learning course.
- 2001  
*full-time* **Software Developer, SOMA Networks. Toronto, Ontario, Canada.**  
Involved in implementation and testing of wireless network protocol for large start-up. Worked extensively with C++, Java, and Perl.
- 1999 - 2001  
*full-time* **Compiler Optimization Developer, IBM Canada. Toronto.**  
Implementation of optimization algorithms for platform-portable C/C++/FORTRAN compiler. Worked extensively with C and C++.

## Research Interests

My research is based on helping users to find solutions to difficult problems by using machine learning to intelligently formulate questions to be put to the user. Applications I've worked with include finding parameters for animation and graphics, robot path-planning, training agents in computer games, computer vision systems, and internet search and recommendation. My publications include novel work in active learning, experimental design and Bayesian optimization.

## Postgraduate Awards

- 2007 **First Place, ACM SIGGRAPH 2007 Student Research Competition**  
International publication award. \$1000 USD.
- Walter C. Koerner Fellowship**  
UBC institutional award. \$14 000, plus \$2000 department top-up award.
- 2006 **University of British Columbia Graduate Fellowship**  
UBC institutional award. \$32 000.
- 2004 **NSERC PGSD Doctoral Scholarship**  
National award. \$42 000, plus \$4000 department top-up award.

## Selected Publications

- 2010 **E Brochu**, T Brochu and N de Freitas. *A Bayesian Interactive Optimization Approach to Procedural Animation Design*. ACM SIGGRAPH/Eurographics 2010 Symposium on Computer Animation.
- 2009 R Martinez-Cantin, N de Freitas, **E Brochu**, J Castellanos and A Doucet. *A Bayesian Exploration-Exploitation Approach for Optimal Online Sensing and Planning with a Visually Guided Mobile Robot*. *Autonomous Robots*, 27 (2):93-103.
- 2007 **E Brochu**, N de Freitas and A Ghosh. *Active Preference Learning with Discrete Choice Data*. *Advances in Neural Information Processing Systems*.
- E Brochu**, A Ghosh and N de Freitas. *Preference Galleries for Material Design*. ACM SIGGRAPH Sketch. **First Place award, ACM SIGGRAPH 2007 Student Research Competition.**
- 2003 **E Brochu** and N de Freitas. *"Name That Song!": A Probabilistic Approach to Querying on Music and Text*. *Advances in Neural Information Processing Systems*.

**full list available at <http://haikufactory.com/publications>**

## Professional Activities

- 2008 A Davar, M Klaas and **E Brochu**. US Patent 20070156615 *entitled* Method for training a classifier.
- 2006 **E Brochu**. *VAGUE: A Multimedia Navigation Tool*. Multimedia installation, Vancouver Art Gallery. October 2006 to January 2007. Part of exhibition "Emily Carr: New Perspectives on a Canadian Icon".
- Submission reviewer: IJCAI (2009), NIPS (2008, 2007), GI (2008), ICML (2007), AAAI (2007), SIGGRAPH (2006, 2005, 2004), CVPR (2005, 2004).

## Technical Skills

Primary development languages: Python (inc. SciPy, NumPy, Matplotlib, etc.), C++, MATLAB. Worked on projects involving Perl, Java, ActionScript and others.

Primary development platforms: OSX, Linux, AIX.