

Eric Brochu

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haikufactory.com/cv
citizenship: Canadian

A Machine Learning researcher and software developer, I am looking for new projects that allow me to exercise my research, technical and creative abilities. I have a strong academic research background and industry experience, with a focus on interactive tools for media creation and analysis. I have won awards for my post-graduate work, and I have worked on highly successful iPhone and iPad applications.

Education

- 2011 **PhD, Computer Science. University of British Columbia. Vancouver, Canada.**
Nando de Freitas, supervisor.
thesis title: *Interactive Bayesian Optimization: Learning User Preferences for Graphics and Animation*
A+ coursework average (UBC theses are not graded).
- 2004 **MSc, Computer Science. University of British Columbia.**
Nando de Freitas, supervisor.
thesis title: *Music Interpreted as Lexical Qualifiers*
A+ coursework average.
- 1998 **BSc, Computer Science. University of Regina. Regina, Canada.**
Graduated with Distinction.
- 1997 **BA, English (minor in Film Studies). University of Regina.**
Graduated with Distinction.

Employment

- oct 2010 - feb 2011 **Research Consultant, Pocket Pixels. Vancouver, British Columbia, Canada.**
After completing PhD thesis, contracted with company producing iPhone and iPod photography apps, notably ColorSplash, a best-selling app. Researched computer vision segmentation algorithms to run at interactive speed on iOS platforms.
- 2009 (part-time),
2008 **Senior Researcher, Worio. Vancouver.**
In 2008, I took a one-year academic leave to work full-time with Worio, researching and developing recommendation system now being used in the popular iPad app Zite. Also worked on search, analytics and personalization systems.
- 2006 - 2007
part-time **Researcher/Developer, Worio.**
While PhD student, help develop novel search technologies for start-up. Also directly involved in presenting to investors, planning strategy and recruitment.
- 2002 - 2006
part-time **Research Assistant, UBC/Vancouver Art Gallery. Vancouver.**
Successful projects include developing multimedia interface as part of online component of Vancouver Art Gallery Emily Carr exhibit (launched 2006), and developing novel algorithms for computer game AI.
- 2001 - 2002, 2010
part-time **Teaching Assistant, UBC. Vancouver.**
TA for undergrad- and graduate-level Machine Learning courses. Duties included designing materials for teaching Machine Learning programming using Python.
- 2001 **Software Developer, SOMA Networks. Toronto, Ontario, Canada.**
Implementation and testing of wireless network protocol for large start-up.
- 1999 - 2001 **Compiler Optimization Developer, IBM Canada. Toronto.**
Implementation of optimization algorithms for platform-portable compiler.

Research Interests

My PhD 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, games, 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

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

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), AAI (2007), SIGGRAPH (2006, 2005, 2004), CVPR (2005, 2004).

Technical Skills

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