Eric Brochu

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AI expert with a PhD in Machine Learning and extensive industry experience. Proven leader in AI system development, team leadership, and delivering impactful projects. Specializes AutoML, Explainable AI, and Trust and Safety models.

Employment

feb 2023 - present **Artificial Intelligence Architect** **Salesforce** Vancouver, BC, Canada

- AI development for Salesforce Einstein CoreML teams on AutoML and Explainable AI projects (2023).
- ML/DS lead on Einsten GPT Content Moderation team, responsible for evaluating, deploying, and monitoring language models for Trust and Safety (2024). Worked directly with Salesforce Research to refine, evaluate and deploy bidirectional language models for prompt defense, toxicity, and bias that improved performance while reducing latency and overall costs as much as 70%.
- Key projects: rewrite of AutoML pipeline, training and deploying first-party sensitive data masking models, evaluation and integration of first- and third-party trust and safety solutions.

dec 2020 - feb 2023 **Software Architect, Machine Learning** **Tableau, a Salesforce Company** Vancouver

- Established and led the Tableau ML Engineering team.
- Developed Feature Stores, integrating ML pipelines with large-scale data analysis, and deploying gradient-boosting and graph NN models for real-time insights..
- Mentored and motivated ML Engineers.
- Key projects: Personalized Learning-to-Rank model implementation, automatic time-series analysis features, Feature Store integration in ML production infrastructure.

apr 2020 - dec 2020 **Principal Software Engineer, Machine Learning** **Tableau** Vancouver
apr 2019 - apr 2020 **Staff Software Engineer, ML**
mar 2016 - apr 2019 **Senior Software Engineer, ML**

- Oversaw ML engineering practices including hyperparameter tuning, model evaluation, and A/B testing. Key projects included deploying Recommendation Engines and Anomaly Detection models in production environments, leveraging TensorFlow, PyTorch, and scikit-learn.
- Acted as a scrum lead, founded an ML Engineering and Data Science "guild," and coached ML engineers.
- Key projects: Primary or lead ML engineer on Data Source & Tables Recommendations (shipped 2017), View Recommendations (2019), and Data Change Radar (2021).

2014 - 2016 **Independent Developer and Consultant** ***self-employed*** Vancouver

- Worked as a Machine Learning/Computer Vision consultant for iOS apps.

2011 - 2014 **iOS App Developer, *etc*** **Pocket Pixels** Vancouver

- Dev on popular iOS photo editing apps, including Color Splash and Juxtaposer, which made the App Store Top 10 Paid Apps list. Involved in UI/UX design, marketing, project management, and customer support.

Education

2011 **PhD, Computer Science** **University of British Columbia** Vancouver, BC, Canada
Nando de Freitas, supervisor.
Thesis: Interactive Bayesian Optimization

Selected PhD awards:

First Place, ACM SIGGRAPH 2007 Student Research Competition
Walter C Koerner Fellowship
University of British Columbia Graduate Fellowship (UGF)
Natural Sciences and Engineering Research Council Doctoral Scholarship (NSERC PGS D)

Focus: Interactive Bayesian Optimization, an AI tool designed to efficiently assist human decision-making by using Bayesian methods to generate informative problem-solving questions.

2004 **MSc, Computer Science** **UBC**
Nando de Freitas, supervisor
Thesis: Music Interpreted as Lexical Qualifiers

1998 **BSc, Computer Science** **University of Regina** Regina, SK, Canada
Graduated with Distinction

1997 **BA, English w/ minor in Film Studies** **University of Regina**
Graduated with Distinction

Selected Publications

A Crisan, M Shang and **E Brochu**. 2023. *Eliciting Model Steering Interactions from Users via Data and Visual Design Probes*. IEEE Transactions on Visualization and Computer Graphics.

D Ting and **E Brochu**. 2018. *Optimal Subsampling with Influence Functions*. Thirty-Second Annual Conference on Neural Information Processing Systems (NeurIPS 2018).

E Brochu, VM Cora and N de Freitas. 2010. *A Tutorial on Bayesian Optimization of Expensive Cost Functions, with Application to Active User Modeling and Hierarchical Reinforcement Learning.* arXiv:1012.2599.
Cited > 3000 times.

E Brochu, A Ghosh and N de Freitas. 2007. *Preference Galleries for Material Design.* ACM SIGGRAPH Sketch.
First Place, ACM SIGGRAPH 2007 Student Research Competition.

Complete list available here.

Professional and Academic Activities

Co-inventor on Machine Learning patents US20240134914A1 *Content based related view recommendations*, US10877970 *Identifying relevant data sources for a data visualization application*, US20080262986 *Method for training a classifier*, US20210133239 *Providing data visualizations based on personalized recommendations*, US20230143734 *Detecting anomalies in visualizations*. Several more have been filed as of 2024.

Submission reviewer for UIST, NIPS/NeurIPS, UAI, IJCAI, GI, ICML, AAAI, SIGGRAPH, CVPR.

Program committee, NeurIPS Workshop on Bayesian Optimization, Experimental Design and Bandits.