

BO ZHAO

Technical Lead, ML/AI | Bank of Montreal AI | Toronto

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PROFILE

AI Technical Lead and Researcher with 6+ years of experience bridging the gap between SOTA research (LLMs, Agents, Deep Learning and Machine Learning) and regulated financial production systems. Ph.D. in Computer Science with a focus on Deep Learning. Proven track record of deploying award-winning AI products serving 2M+ users and leading cross-functional teams to deliver scalable, high-impact banking solutions.

CORE EXPERTISE

- **Leadership:** Technical Strategy, AI Roadmap Planning, Team Leadership & Mentoring, Project Management, Cross-Functional Collaboration, Driving AI Adoption
- **Programming & Data Engineering:** Python, PyTorch, Data Modeling & Feature Engineering
- **ML & AI:** Deep Learning, Graph Learning, Time Series Forecasting, Probabilistic Modeling, Optimization
- **GenAI:** RAG, GraphRAG, LangChain, LangGraph, Agent Development, Prompt Engineering, Evaluation
- **Cloud & Production:** AWS SageMaker, Azure ML Studio, Git, CI/CD, MLOps & Model Governance
- **Finance:** Pricing & Forecasting Models, Risk Modeling, Cross-Selling & Recommendations in Banking, Wealth, and Capital Markets, Model Risk Management

PROFESSIONAL EXPERIENCE

Bank of Montreal (BMO), Canada

Aug 2019 – Present

Technical Lead, ML/AI

Dec 2025 – Present

- **Strategic Leadership:** Direct technical strategy and architectural oversight for a team of 7 AI engineers and data scientists; established MLOps best practices (CI/CD, drift detection) to translate research prototypes into regulated production environments.
- **GenAI Architecture:** Spearheaded the implementation of enterprise **GraphRAG**, enabling multi-hop reasoning over complex financial knowledge graphs to enhance LLM contextuality and significantly reduce hallucinations.
- **Agentic AI:** Architected a **ReAct-based Autonomous Agent** for Home Finance, enabling dynamic tool invocation (SQL, APIs) for real-time scenario planning and strategic reporting.

Applied AI Researcher

Aug 2019 – Dec 2025

- **Production Deployment:** Delivered *CashTrack* (BAI Global Innovation Award 2020, Celent Model Bank Award 2021), a cashflow forecasting engine for **2M+ users**, managing full lifecycle from time series modeling to scalable cloud deployment.
- **Graph Learning:** Designed *Deep Client Embeddings* using GNNs on transaction graphs, boosting cross-selling lead conversion by **30+%**.
- **Financial Forecasting:** Developed an AI-driven home finance forecasting model (Global AI Award, The Digital Banker 2025), cutting MAPE by **50%+** and improving resource allocation.
- **Capital Markets:** Built irregular time-series models for municipal bond pricing, generating **\$37.5M** incremental revenue over 5 years through better pricing accuracy.

University of British Columbia (UBC), Canada

Jan 2018 – Jul 2019

Postdoctoral Research Fellow

- **Generative AI Research:** Pioneered novel techniques in **Layout-to-Image Synthesis**, defining new State-of-the-Art (SOTA) benchmarks. Authored multiple top-tier publications (CVPR, ECCV, IJCV); selected for a **CVPR Oral Presentation** (top ~5% acceptance).

- **Open Source Engineering:** Architected and open-sourced a PyTorch-based image generation framework, facilitating reproducibility and widespread community adoption of complex scene generation research.
- **Global Collaboration:** Selected as an **Affiliated Fellow at Vector Institute** and **Visiting Scholar at University of Tokyo**, fostering strategic multi-institution partnerships in computer vision.

Disney Research Pittsburgh, U.S.

Oct 2017 – Dec 2017

Lab Associate

- **Novel View Synthesis:** Innovated a GAN-based **Multi-View Image Generation** architecture capable of synthesizing 3D perspectives from single-view inputs; secured acceptance as an **Oral presentation at ACM Multimedia** (top ~9% acceptance).

SELECTED RESEARCH & INNOVATION

1. **Industry Innovation:** S.M. Nosrati, E. Vahlis, S.H.Y. Shahir, **Bo Zhao**, et al. **Artificial Intelligence Modeling to Predict Electronic Account Data**, *U.S. Patent No. 12,299,727 B2*, 2025.
2. **Bo Zhao**, W. Yin, L. Meng, L. Sigal, **Layout2image: Image Generation from Layout**, *International Journal of Computer Vision (IJCV)*, 2020.
3. **Bo Zhao**, L. Meng, W. Yin, L. Sigal, **Image Generation from Layout**, *CVPR* (Oral, top 5% acceptance), 2019.
4. **Bo Zhao**, B. Chang, Z. Jie, L. Sigal, **Modular Generative Adversarial Networks**, *ECCV*, 2018.
5. Z. Jie, P. Wang, Y. Ling, **Bo Zhao**, Y. Wei, J. Feng, W. Liu, **Left-Right Comparative Recurrent Model for Stereo Matching**, *CVPR*, 2018.
6. **Bo Zhao**, J. Feng, X. Wu, S. Yan, **Memory-Augmented Attribute Manipulation Networks for Fashion Search**, *CVPR*, 2017.
7. **Bo Zhao**, J. Feng, X. Wu, S. Yan, **A Survey on Deep Learning-Based Fine-Grained Object Classification and Semantic Segmentation**, *International Journal of Automation and Computing (IJAC)* (IJAC Most Cited Paper Award, top 1%), 2017.
8. **Bo Zhao**, X. Wu, J. Feng, Q. Peng, S. Yan, **Diversified Visual Attention Networks for Fine-Grained Object Classification**, *IEEE Transactions on Multimedia* (ESI Highly Cited Paper, top 1%), 2017.
9. **Bo Zhao**, X. Wu, Q. Peng, S. Yan, **Clothing Cosegmentation for Shopping Images**, *IEEE Transactions on Multimedia*, 2016.

EDUCATION

Ph.D. in Computer Science

Sep 2010 – Sep 2017

Joint Doctorate Program between National University of Singapore & Southwest Jiaotong University

Selected for the prestigious National Joint Ph.D. Scholarship to conduct advanced research at the **National University of Singapore (NUS)** from 2015–2017.

B.S. in Network Engineering

Sep 2006 – Jun 2010

Southwest Jiaotong University, China

Ranked in top percentile; included a selective **International Exchange Program** at I-Shou University, Taiwan (2009–2010).

HONORS & RECOGNITION

- **Research Excellence:** Mitacs Globalink Research Award, Canada 2019
- **AI Innovation:** Vector Institute Research Award, Canada 2019
- **International Leadership:** DAAD Postdoctoral Networking Award, Germany 2018
- **Academic Merit:** National Joint Ph.D. Scholarship (Top-tier selection) 2015 – 2017
- **Academic Merit:** National Scholarship, China (Awarded 3x for top ranking) 2007, 2008, 2014