

EXPERIENCE

• OpsGuru, A Carbon60 Company

Senior AI/ML Engineer

Toronto, ON

Oct 2023 - Present

- **Large Language Models:** Reduced qualitative survey analysis times by 95% for a customer experience management client using DSPy, fine-tuned LLMs on Amazon Bedrock, and classical NLP with spaCy.
- **Deep Learning:** Optimized U-Nets for an energy client, scaling real-time leak detection to 11,800 pipeline miles.
- **Machine Learning:** Operationalized XGBoost promotion targeting system for a toll highway operator, decreasing training times by 30x and saving US\$880K in annual cloud costs.
- **Machine Learning Operations:** Designed and implemented 10+ MLOps solutions on Amazon SageMaker, developing processes, infrastructure, and training materials for each stage in the MLOps workflow.

Senior Data/ML Engineer

Oct 2022 - Oct 2023

- **Large Language Models:** Engineered a chatbot RAG system for interacting with internal knowledge bases, outperforming Amazon Q by 90% on question-answering tasks using Amazon Bedrock, Chainlit, and Terraform.
- **Professional Services:** Led cross-functional teams in 20+ Data, ML, and MLOps engagements from pre-sales to completion, including discovery, talent casting, report creation, implementation, and escalations ;-).
- **Data Modeling:** Designed complex canonical data models for public and private sector clients in highly regulated environments, receiving CSAT scores of 9.8+/10.0 for efforts in understanding customer domains.

• Smart Access

Lead Data Scientist

San Francisco, CA

Oct 2021 - Oct 2022

- **Clickstream Analytics:** Designed an analytics service to collect 20M+ weekly interactions and enabled high-confidence analysis of multi-event and multi-session clickstreams.
- **Machine Learning:** Reduced seasonal employee turnover for a major retailer by 30% in 70 stores using survival analysis to predict time-to-quit, enabling early intervention and saving US\$4M in annual onboarding costs.
- **Leadership:** Staffed and supervised a team of 5 data scientists, engineers, and analysts, balancing ad-hoc analysis requests with long-term goals planning, research and experimentation, and platform maintenance.

Data Scientist

Apr 2021 - Oct 2021

- **Natural Language Processing:** Improved relevance of search results by 70% using lemmatization, synonymization, and thematic clustering techniques to enable semantic search of platform content.
- **Platform Operations:** Architected and implemented a self-serve data and MLOps platform on GCP using BigQuery, Dataproc, Superset, MLFlow and Python.

• SensorUp

Data Scientist

Calgary, AB

Sept 2018 - Sept 2020

- **Computer Vision:** Fine-tuned and deployed hazard detection models on edge devices to 400 remote industrial sites using AWS Lambda, DeepStream, and YOLO, reducing average hazard reaction time by 75%.

PROJECTS

- **LegalCoder:** LLM-based annotator for legal texts to produce verifiable code implementations in the Catala DSL.
- **ML Toolkit:** Processes and heuristics for designing and operationalizing machine learning systems (WIP).
- **IHL:** Research DSL for structured programming of LLM-based applications as a type-safe alternative to DSPy.

SKILLS

- **Languages:** Python, SQL, Go, C, Scala, JavaScript, OCaml, ReasonML, CUDA, MLIR, \LaTeX
- **Technologies:** AWS, GCP, Terraform, Docker, Kafka, Trino, Spark, PyTorch, JAX/XLA, spaCy

EDUCATION

• University of California, Berkeley

Doctor of Philosophy (PhD) in Computer Science (In Progress)
Bachelor of Science (BSc) in Computer Science

Berkeley, CA

Sparsity in Clickstream Inference
Statistics and Machine Learning

PUBLICATIONS IN REVIEW

- **MarkovEFB**: Improving high-sparsity gradient boosting with Markov-modulated exclusive feature bundling.
- **M2K Classifier**: Identifying child-appealing marketing with vision and natural language machine learning.
- **InaraNet**: Antimicrobial peptide recognition with involutional and long short-term memory neural networks.

AWARDS AND GRANTS

- **Citadel GQS PhD Fellowship**: One-year PhD fellowship providing mentorship and US\$100,000 in funding.
- **NSERC PGS Doctoral**: Three-year PhD scholarship providing CA\$63,000 in funding.
- **Fulbright Canada Student Award**: One-year undergraduate grant providing US\$25,000 in funding.

PREVIOUS EXPERIENCE

- **Sprout Fund I/II** Edmonton, AB
Venture Capital Advisor, AI/ML *Sept 2020 - Present*
 - **Investment Analysis**: Evaluated 40+ ML-focused startup companies for technical viability and product-market fit, providing decision support and knowledge translation to the investment management team.
 - **Redman Technologies** Edmonton, AB
Software Engineer Intern *Summer 2017 and 2018*
 - **Full-stack**: Built a visualization platform for neighborhood statistics using CouchDB, Node.js, and Express deployed to 1400+ Realtors across Canada.
 - **Mozilla Foundation** Summer 2016
Compiler Engineer Intern *Portland, OR*
 - **Memory Allocation**: Designed and implemented a type-partitioning memory allocator used in experimental browser engines, scripting language runtimes, and just-in-time compilers.
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Your scientists were so preoccupied with whether they could, they didn't stop to think if they should.

—*Jurassic Park (1993)*