Robert Reder

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Education

University of Toronto Toronto, ON

Bachelor of Science, Major in Mathematics, Statistics and Computer Science (Focus in Machine Learning) *Expected May 2027*

Experience

Pokerly | *Founder & CTO* *Sep 2025 – Present | Toronto, ON*

- Built an AI-powered poker assistant that **scans physical cards using a fine-tuned ResNet-50 CNN** and provides real-time advice via **TypeScript backend** and **JS/CSS/HTML frontend**, helping users make smarter decisions.
- Applied **behavioral analytics** with **Pandas & Pytorch** to optimize strategy and increase predictive accuracy.
- Led **end-to-end product development**, integrating frontend, backend, and ML systems into a production-ready app.

Royal Bank of Canada | *Machine Learning Data Engineer (Contract)* *May 2025 – Aug 2025 | Toronto, ON*

- Improved turnover prediction accuracy by **23%** by training **supervised deep learning models** (**transformers**) on 5+ years of historical fund data and market feeds, deployed on **AWS SageMaker**.
- Reduced fund performance processing time by **300%** by containerizing a turnover processor with **Docker** & **Kubernetes** in **Python/Pandas/SQL**, integrating ML forecasts into portfolio pipelines.
- Decreased report drafting time by **90%** by building a **retrieval-augmented generation (RAG)** system that paired tuned **LLMs** with internal fund documentation, served via a **AWS**-hosted **API**.

Manulife | *Software Engineer Intern* *Apr 2025 – Aug 2025 | Toronto, ON*

- Reduced onboarding query resolution time by **40%** by deploying a **Salesforce** copilot powered by tuned **LLMs** and **RAG** retrieval over policy docs, hosted on **Azure Functions** with **Docker**.
- Achieved **92%** classification accuracy in routing client requests by training **deep learning models** with **adapter-based fine-tuning** on anonymized onboarding data, cutting manual triage workload.
- Improved workflow efficiency for **50+** processors by building **Apex** features integrated with ML-driven data pipelines, ensuring synchronization between **Salesforce** and **PostgreSQL**.
- Increased ETL throughput by **35%** and eliminated 100+ weekly data errors by containerizing **SQL** workflows into an **Airflow DAG** using **Docker** & **Kubernetes** with automated data validation in the cloud.

DeepCove Cybersecurity | *Machine Learning Cybersecurity Intern* *June 2024 – Dec 2024 | Toronto, ON*

- Built, trained, and tested **deep learning models** in agent-based environments, enhancing model performance by **26%**.
- Utilized **LoRa** (Low-Rank Adaptation of LLMs) and **PEFT** (Parameter Efficient Fine-Tuning) to successfully fine-tune a pre-trained LLM, enabling it to accurately analyze cybersecurity logs and filter relevant issues with **87%** precision.
- Deployed clusters to manage data in **Elastic Search** using **Kubernetes** & **Docker**, improving data retrieval times by **42%**.

Machine Learning Intern | *UofT Machine Intelligence Student Team* *Feb. 2024 – June 2024 | Toronto, ON*

- Developed **LLMs** via **RAG** using **PyTorch** and **TensorFlow**, improving accuracy by **38%** on benchmark datasets.
- Created a **vector database** utilizing **FAISS** and **LlamaIndex**, enabling **21%** faster data retrieval.
- Implemented data cleaning algorithms, streamlining the processing of new data and ensuring models were updated with current text, resulting in a **14%** increase in response relevance.

Projects

Project Bergster | ***Winner of Google Student Developer Hackathon @ UofGuelph*** | *Next.js, AWS, Tensorflow, ML*

- **Created** a cognitive training, emotion detection tool using **Computer Vision** with **Python, Tensorflow** & **FaceAPI.js**.
- **Ensured** offline functionality, upheld **100% data privacy** and significantly reduced dependency on traditional therapy sessions, leading to a significant **decrease** in therapy-related costs for **educational institutions**.
- **Scaled** and **Implemented** Bergster as a research tool, now used by **30+ students** at my school.

MITRE Attack Classifier | *Python, PyTorch, Pandas, scikit-learn, SQL, ElasticSearch*

- Fine-tuned a **BERT** model to classify logs by **MITRE ATT&CK techniques**, improving detection accuracy by **82%**.
- Built a **ML pipeline** to clean and preprocess **ElasticSearch logs** and **EVTX data** using **Pandas**, train predictive models with **PyTorch/scikit-learn**, and evaluate on simulated DNS, firewall, and other cyber logs.
- Deployed the model to a simulated system, demonstrating end-to-end capability from raw log ingestion to real classification.

Technical Skills

Languages: Python, Java, C++, C#, SQL, R, JavaScript, TypeScript, HTML, CSS, Swift, GoLang, Assembly, Kotlin, Ruby, Rust, Apex

Frameworks: React, Next.js, Flask, Django, Node.js, Angular, Express, Vue, Spring

Libraries & ML/AI: pandas, NumPy, Matplotlib, scikit-learn, PyTorch, TensorFlow, Keras, Hugging Face, Transformers, Torchvision, OpenCV, LangChain, FAISS, LlamaIndex, Mediapipe, Three.js, HTML2Canvas, PyInput, TailwindCSS

ML Concepts & Techniques: Reinforcement Learning, Supervised/Unsupervised Learning, Retrieval-Augmented Generation (RAG), Quantization, MLflow

Developer Tools & Platforms: Git, Docker, Kubernetes, AWS, GCP, Azure, Linux, UNIX, BASH, Maven, Visual Studio, PostgresSQL, MySQL, MongoDB, NoSQL, ElasticSearch, Spark, Hadoop, Tableau, Excel, Outlook, Figma, Photoshop, JIRA, Atlassian, Confluence, Agile, REST APIs

Soft Skills: Problem-Solving, Leadership, Agility