Alexandre Brown

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SUMMARY

Versatile AI researcher and software engineer with strong expertise in machine learning, computer vision, and software development. Proven track record delivering end-to-end solutions from prototype to production in academia and industry.

EXPERIENCE

Graduate Student Researcher
Mila Quebec Artificial Intelligence Institute   **September 2024 – Present, Montreal**
· Research on Visual Generalization for Deep Reinforcement Learning & Robot Learning.

Data Scientist Intern
Intact Insurance   **May 2024 – September 2024, Montreal**
· Trained and tuned XGBoost wildfire-prediction models on large geospatial datasets and improved performance.
· Engineered features and assessed data quality impacts.
· Created a geospatial tool using SHAP for regional model explainability.

Python Teaching Assistant
University of [Institution]   **November 2023 – May 2024, Montreal**
· Tutored and evaluated 150+ undergraduates in Python programming.
· Graded assignments and exams for Python programming class.

Machine Learning Specialist
Microdrones   **August 2021 – October 2023, Montreal**
· Founded and led AI division; designed and deployed object-detection models for RGB and multispectral imagery, achieving SOTA in eucalyptus crop analysis.
· Implemented point-cloud sampling algorithms, boosting throughput by 100×; maintained AI research platform on AWS/Kubernetes.

Android Developer
Microdrones   **January 2019 – August 2021, Montreal**
· Developed safety-critical drone-control app (Clean Architecture) in Kotlin/Java; integrated LiDAR and mapping SDKs.
· Championed TDD and wrote extensive unit/integration tests; collaborated in Agile teams.

Full Stack Developer (C#/ASP.NET)
Telus   **August 2018 – January 2019, Montreal**
· Built a web platform for appointment scheduling and medical record management; implemented microservices and managed SQL Server databases.

IT Technician
Best Buy/Geek Squad   **March 2016 – August 2018, Saint-Jérôme**
· Automated Windows deployments; delivered multi-client technical support and troubleshooting.

PUBLICATIONS

SegDAC: Segmentation-Driven Actor-Critic for Visual Reinforcement Learning
RL Paper · 2025

Survey on Simulators, Frameworks, and Benchmarks for Robot Learning
RL Paper · 2025

EDUCATION

M.Sc. Computer Science (AI)
University of [Institution] · Montreal · 2025

B.Sc. Computer Science (AI)
University of [Institution] · Montreal · 2023

DEC Computer Science Technology
CEGEP [Institution] · 2015–2019

PROJECT

Canada Wildfire Prediction using Deep Learning

github.com/AlexandreBrown/WildfirePrediction · July 2024 – September 2024

· Developed and trained Semantic–segmentation model predicting annual wildfire occurrence across Canada using temporal geospatial vegetation and weather data.
· Created a data processing pipeline to automatically download data for a desired location and time period, generate a processed dataset using complex geospatial data from over 16 data sources (eg: NDVI, EVI, LAI, Tree Cover, Weather, Wind, PE, TP, DEM and more).

Cloud Cover Detection Challenge

github.com/GIF-7005-Projet/cloud-cover-detection · October 2023 – December 2023

· Developed and implemented multiple deep learning model architectures to segment clouds from Sentinel-2 RGB, near-infrared, and infrared satellite imagery sourced via Microsoft's Planetary Computer.
· Conducted end-to-end model training, validation, and error analysis across multispectral bands to optimize segmentation accuracy.
· Achieved state-of-the-art cloud-masking performance under stringent time constraints.

CERTIFICATIONS

Introduction to Deep Learning & Neural Networks with Keras
IBM · 2021

Deep Neural Networks with PyTorch (with Honors)
IBM · 2021

Convolutional Neural Networks
DeepLearning.AI · 2021

Deep Learning with PyTorch : Image Segmentation
Coursera · 2021

Deep Learning with PyTorch : Convolutional Neural Network
Coursera · 2021

Machine Learning with Python
IBM · 2021

Machine Learning
Stanford · 2020

SKILLS

Python, PyTorch, XGBoost, ONNX, Kubeflow, Kubernetes, AWS, SQL (PostgreSQL, SQL Server), Docker, Git, QGIS, Android (Kotlin, Java), C#, ASP.NET, React

English, French