Evan **Loughlin**

Software Engineer - Machine Learning

About Me

Software engineer with backgrounds in Computer Science (Machine Learning) and Civil Engineering.

Canada / Remote

Areas of Specialization

Machine Learning • Artificial Intelligence • Software Engineering • Data Analytics

Interests

Scientific Computing • AI Ethics • Algorithms • History • Rock Climbing • Outdoors

e-loughlin

eloughlin

Portfolio

evan.m.loughlin@gmail.com

+1-587-433-3826

Computer Science

2022–2024 — **Software Engineer / Data Analytics**

Highlight · New York, NY / Remote

Full stack software engineering for Marketing Tech Startup. Developed Live Dashboard for marketing and analytics, supporting 50,000 users. Lead efforts in Data Analytics team, developed ML models (Random Forest), and a unique Genetic Algorithm solution. **Typescript** **C#** **React** **Go** **Microservices** **Terraform** **AWS** **Machine Learning** **Python** **SKLearn** **PostgreSQL**

2021–2022 — **Modeling and Simulation Engineer (R&D)**

Cerio · Ottawa, ON / Remote

R&D - High Performance Computing Networks. Developed tools for data analytics, conducted experiments, simulations, and visualizations. **Python** **Anaconda** **Data Visualization** **Machine Learning** **Python** **SKLearn** **Go**

2019–2020 — **Software Engineer**

Circle Cardiovascular Imaging · Calgary, AB

Developed software for CVI42 (MRI Cardiovascular Imaging) - using SIMD Vectorization libraries for CPU Optimization. Used Convolutional Neural Networks for detecting cardiovascular irregularities and delineating anatomical regions. **C++** **CPU Optimization** **Computer Vision** **Machine Learning** **Medical Imaging** **Go**

2018-2019 — **Software Engineer**

Lockheed Martin · Calgary, AB

Developed mission-critical systems for UAVs (military drones) using C++, Qt, and Python. Practiced TDD and clean architecture techniques. **C++** **Qt** **Python** **Robotics** **SQL** **Test Driven Development**

Education

2019–2024 — **MSc Computer Science - Machine Learning / AI**

Georgia Institute of Technology · GPA: 3.6 / 4.0

2016–2018 — **BSc Computer Science**

University of Calgary · GPA: 3.4 / 4.0

2007–2012 — **BSc Civil Engineering**

University of Calgary · GPA: 3.4 / 4.0

2011 — **International Exchange**

Universität Stuttgart · Computational Mechanics of Materials (COMMAS)

Skills

- **Python / Anaconda**
- **Go, C#, C/C++**
- **ML Algorithms**
- **Javascript / Typescript**
- **AWS**

Designations

2021 Professional Engineer (APEGA)

Languages

English	C2	Native
German	B1	● ● ○ ○

Programming Languages

Python **C** **C++** **C#** **Go** **Javascript** **Typescript** **Java** **LaTeX** **Nix** **Bash** **Arduino**

Frameworks & Tools

React **Docker** **Kubernetes** **Node** **Qt** **Go** **GraphQL** **Google Test** **CMake** **Jenkins** **Docker** **PostgreSQL** **Hasura** **Github Actions** **Neovim** **Unity**

Evan Loughlin
Software Engineer
• Machine Learning

evan.m.loughlin@
gmail.com

+1-587-433-3826

Civil Engineering

2012–2016

Various Roles - Civil / Structural Engineering
Herold Engineering, Terra HDD, Jacobs Engineering ·
Worked on structural and geotechnical engineering projects, including oil & gas facilities, bridges, buildings, pipeline crossings, and more. Involved in engineering, project management, inspections, and data analysis.

Steel **Wood** **Concrete** **Foundations** **Finite Element Analysis**
Earthquake Design **Geotechnical Engineering** **Project Engineering**

Coursework

Research Paper	**University of Calgary**: A Multi-Agent Simulation Framework for Studying Autonomous Vehicle Behaviour and Intelligent Transportation Networks Developed a simulation framework using Unreal Engine 4 (UE4) to study transportation network behavior involving autonomous and human-driven vehicles. The framework includes behavior trees and various parameters (behavioral, perception, physical) to model agent behavior.
CS7641	**Machine Learning** Supervised, Unsupervised Learning, Reinforcement Learning
CS6475	**Computational Photography** Convolutions, image and signal processing, edge detection, pyramids, Fourier transforms. OpenCV, NumPy, Python, TensorFlow
CS6601	**Artificial Intelligence** A.I. course focused on AI: A Modern Approach (Peter Norvig). Modules include A.I. Game Playing (Minimax / Alpha-Beta Pruning), Search (A*, Bi/Tri-Directional), Simulated Annealing, Constraint Satisfaction, Probability, Bayes Nets, Pattern Recognition, and Machine Learning.
CS7638	**A.I. for Robotics** Kalman Filters, Particle Filters, A* Search, PID Controllers, and SLAM (Simultaneous Localization and Mapping)
CS7637	**Knowledge-Based Artificial Intelligence** Python (NumPy and PILLOW libraries) AI agent developed to solve Raven's Progressive Matrices (a type of problem within some IQ tests).
CS7646	**Machine Learning for Trading** Machine learning for financial trading, including Pandas, Bayes Theorem, Probabilistic Machine Learning, Hedge Funds, Market Indicators, Q-Learning, Reinforcement Learning
Computational Mechanics	**Stuttgart University (Germany)** Completed several master's courses during an international exchange at Stuttgart University's (Germany) COMMAS program; topics included numerical methods, computational mechanics of geomaterials and steel, thermodynamics, environmental particle dispersion, and vector calculus.

Projects

acku.org	**All Canadian Karate Union - Website** Wordpress website I developed and maintain, on a volunteer, pro bono basis. I was a former instructor. Integrated Calendar and Google Maps API for all instructors to manage their own clubs.
C++ Code Generator	`https://github.com/e-loughlin/CppCodeGenerator` Template-based C++ Code Generator I wrote in Go, with Qt support. Open-source with over 20 Stars on GitHub. Estimated 50,000+ downloads. Helps enforce clean coding practices.
Image Organizer Tool	`https://github.com/e-loughlin/image_renamer` Python tool for re-naming large numbers of photos to consistent filenames based on their EXIF timestamp data. Includes options for resizing images.
Sudoku Solver	`https://github.com/e-loughlin/SudokuSolver` Bored on a long flight and without internet, I wrote a brute-force recursive algorithm solution to ruin the fun of any Sudoku puzzle, in C++.