Jacob Williams

Sr Software Developer
Full Stack Solutions

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Links

github.com/bayswaterpc
linkedin.com/in/jwbayswater

Skills

LANGUAGES
C/C++, Rust, Python
JS, TS, CSS, HTML

FRONTEND
React, Redux, Mobx
QT, Egui, WASM
D3, Plotly, Konva
AdobeXD, Figma

BACKEND
Node, Express, NextJs
Rocket, Actix, Flask
GraphQL, REST
Docker, Kubernetes

DEV OPS
Terraform, Pulumi
Github Actions
Azure Pipelines

CLOUD
AWS, Azure, Oracle
AWS-Certified Cloud Practitioner

DATABASE
MySQL, PostgreSQL
MongoDB,Cassandra, Redis

TESTING
Jest, Cypress, Google Test

DESKTOP
UE4, Bevy, Electron
AutoCad

OS
Windows, GNU/Linux

ML
Tensorflow, Keras, Pytorch

CITIZENSHIP
US, Canada

Experience

2019-NOW **Sr Software Developer** **Carlson Software, Ottawa**
Use Rust, C++, Typescript, and React to deliver optimized solutions for resource estimation, mine planning, and digital twin solutions. Developed and Deployed Machine Vision Algorithms for IOT bulk inventory measurement and used React, Node, GraphQL, Oracle DB, Cassandra, Docker, Kubernetes to create associated web portals. Delivered a desktop blasting package with cloud integrations using Electron, React, Typescript, Node, Rest, MongoDB, and Redis.

2015-2017 **Jr Project Engineer** **Heritage Crystal Clean, Chicago**
Managed a portfolio of projects for the Waste Oil Recycling Facility. Focused on increasing production and retrofitting facilities to new safety standards. Prepared new projects cost estimation and business proposals. Developed python dashboards using pandas and matplotlib for visualizing processing plant production data.

Education

2017-2019 **Masters Mining Engineering** **McGill University, Montreal**
Focused on using meta-heuristic, AI, and machine learning to solve problems in mine planning and production optimization. Created discrete optimization tools for robot path planning.

2010-2015 **Bachelors Mining Engineering** **McGill University, Montreal**
Completed 20 months of Co-Op positions in various roles such as Metals Market Analyst, Lab Researcher, Ventilation Engineer, Drill and Blasting engineer, and Surveyor.

Publications

2021 **Exploring Deep Learning for Dig-Limit Optimization in Open-Pit Mines**
Lead-Author, Journal of Natural Resources Research, *30*
Investigated how to generate datasets, train, and deploy CNN's to perform GPU accelerated assessment of clustering in Dig Limit Optimizations.

2016 **Optimizing Ore–Waste Dig-Limits as Part of Operational Mine Planning Through Genetic Algorithms**
Co-Author, Journal of Natural Resources Research, *25*
Deployed Genetic Algorithms to maximize the value of dig limits for multi-element multi-destination scenarios given grade control data, equipment constraints, processing, and mining costs.