

# Jacob Williams

Sr Software Developer Delivering Fullstack Solutions

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## EXPERIENCE

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### Carlson Software, Ottawa — Sr. Software Developer

JAN 2019 - Present

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.

### Heritage Crystal Clean, Chicago — Jr Project Engineer

SEP 2015 - JUN 2017

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

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### McGill University, Montreal — Masters Mining Engineering

JUL 2017- DEC 2018

Used ML to solve mine planning optimization problems. Created discrete optimization tools for robot path planning. Focus on Genetic Algorithms and CNN's

### McGill University, Montreal — Bach. Mining Engineering

SEP 2010 - AUG 2015

Worked 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

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**Exploring Deep Learning for Dig-Limit Optimization in Open-Pit Mines** — *Lead-Author, Journal of Natural Resources Research, 30, 2021*

**Optimizing Ore-Waste Dig-Limits as Part of Operational Mine Planning Through Genetic Algorithms** — *Co-Author, Journal of Natural Resources Research, 25, 2016*

## SKILLS

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### Languages

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

### Frontend

React, NextJS, Redux,  
Mobx, QT, Egui, Yew,  
D3, Plotly, Konva  
Figma

### Backend

Node, Express, NestJS  
GraphQL, REST  
Docker, Kubernetes  
Tokio, Tower

### Database

MySQL, PostgreSQL  
MongoDB, Cassandra  
Redis

### Dev Ops

Terraform, Pulumi  
Github Actions  
Azure Pipelines

### Cloud

AWS, Azure, Oracle  
AWS-Certified Cloud  
Practitioner

### Testing

Jest, Cypress,  
Google Test

### OS

Windows, GNU/Linux

### ML

Tensorflow, Keras,  
Pytorch

### Citizenship

US, Canada