Zain Khan

software engineer

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contact

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professional summary

A multidisciplinary software engineer capable of applying hardware/software solutions to automate or optimize data processes and flows, from collection to analysis.

I am currently seeking an opportunity that allows me to learn and apply my upskill, while contributing to a meaningful purpose through the work I do. It is through such an environment, I work at my best.

education

- **Western University | 2016 - 2021**
  - Mechatronics Systems Engineering (BESc.)
  - Computer Science (BSc.)

work experience

September 2024 - Present
Calgary, AB

GCT Maintenance Solutions | *Software Engineer*

- Developer on a new SaaS platform built for mining and maintenance industry, designed specific to clients needs. Responsible for full stack development from the ReactJS web application with a user focused intuitive design, to the RESTful based NodeJS API server.
- Database management including schema designs in MySQL for efficient queries/mutations and future proofed features. Developed migration/seed files for database recovery and testing.
- Responsible for Azure resources for secrets, container images, blob storage, etc... Established RBAC authentication/authorization between resources for secure use and limiting infrastructure costs while ensuring adaptability in the future and usability in the present.
- Managing Azure resources through Terraform (IaC), automating environment creation and minimizing drift during updates. Creating workflow files for CI/CD through Github Actions for secure deployments to various environments.
- Frequently creating PoC's to validate designs and communicating closely with team members to meet changing specifications and requirements
- Maintained clear documentation to communicate software design changes/updates to other developers and to understand context quickly.

August 2021 - June 2023
Toronto, ON

Heliolytics | *Frontend Developer*

- Developer for an internal React based web tool, from working alongside users in defining requirements to launching the app into production, decreasing turnaround time of image data collection to generating client reports and effectively allowing for a higher capacity of clients
- Full-stack responsibilities include managing a GraphQL database, writing Python scripts, implementing/testing (PyTest) internal API endpoints, utilizing ML algorithms, handling authorization tokens and other tasks as required.
- Worked closely with Product Manager as a developer for various SAAS POC's regarding solar site management, including testing with satellite imagery, effectively assessing potential new competitive ideas against available technical requirements and resources.
- Advised and managed database schema changes to adopt a new data model based on GraphQL and write efficiently optimized SQL queries and mutations as required.
- Played an active role in the creation of a formal scrum team, defining processes between product, design and QA to ensure information is shared universally and consistently across teams. Responsible for detailing and documenting all software design decisions.

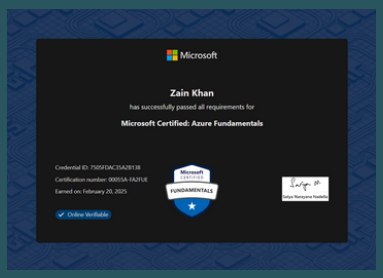
</> technical stack

- **FRONTEND |** ReactJS, TypeScript, HTML, CSS
- **BACKEND |** Python, Java, NodeJS
- **ML |** TensorFlow, Keras, PyTorch, Numpy, Pandas, Pillow
- **EMBEDDED |** C, C++, MATLAB , Simulink
- **DATABASE |** SQL, MySQL, GraphQL, PostgreSQL, MongoDB, Knex
- **INFRA |** Unix, Git, Kubernetes, Docker, Azure Cloud, Terraform, Github Actions

certificates

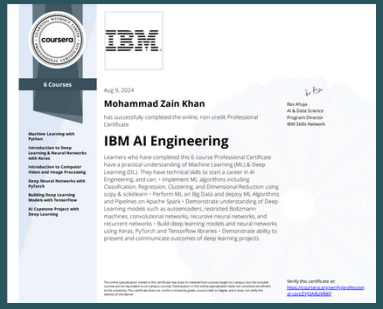
MICROSOFT CERTIFIED: AZURE FUNDAMENTALS

February 20th, 2025



IBM AI ENGINEERING BY IBM ON COURSERA

August 8th, 2024



May 2020 - August 2020
Calgary, AB

University of Calgary | *Developer*

- Primary developer as part of a multidisciplinary team to assist in transitioning teaching resources online for the Chemical Engineering Department at the University of Calgary, during COVID-19.
- Utilized JavaScript, HTML and CSS to create interactive web pages consisting of educational content and calculators for students to use and a database to keep track of individual progress.

extracurricular & projects

ReactJS, Python

thumbs

- A web application allowing users to track 'stories' in the form of movies and games, while allowing ratings on a binary system. Utilizing the collected data to further predict and suggest new content.
- Based in ReactJS with Material UI components and a supporting FastAPI – Python backend to serve endpoints for managing computationally heavy and secure processes such as authorization and database security.

Java

LocalNeighborhoodCNN

- A locally implemented convolutional neural network, developed to understand the CNN architecture and how such a network operates to classify images efficiently. Trained and tested on the MNIST database.
- Programmed in Java from the ground up, including implementations for matrix operations, backpropagation calculus as well as the convolutional, max pool, and fully connected neural network layers.

Python

PyCOVID

- A script written to automatically collect COVID and environmental data to perform various ML analysis and predict trends of cases as well as possible influencing factors.
- Written in Python utilizing Selenium to automate web scraping publicly accessible data and sklearn to perform machine learning data analysis on the data collected.

Python, C++

WERC (Western Engineering Rocketry Club)

- Responsible for managing and implementing onboard control systems to collect telemetry information during the rocket's flight.
- Utilized a Rapsberry Pi with C++ to collect data such as altitude and speed, while utilizing Python scripts to filter the data to a more usable form for analysis to improve on future flights

C++, MATLAB

MSE DESIGN PROJECT

- Mechatronics design project focused on creating a fully autonomous robot to perform a series of coordinated tasks incorporating aspects of electrical, mechanical and software design principles
- Utilized an onboard Arduino microcontroller programmed with C++. Troubleshooting the multidisciplinary aspects of the design, with the use of tools such as an oscilloscope, multimeter, and Matlab's Simulink to model transducers.