Wais Shahbaz

Software Engineering 3A

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Skills

Programming Languages: C++, Javascript, Python, Java, C, R, Scala, SQL, Bash, Go, Ruby, Verilog, VHDL
Frameworks and Libraries: Node, Koa, PyTorch, fast.ai, pandas, React, PostgreSQL, RabbitMQ, Rails, Flask
Software Tools: Kubernetes, Docker, GCP, Jupyter, Git, Jenkins, ETL Pipelines, Bazel, Bash Scripting
Hardware Tools: FPGAs, ARM and MIPS Processors, Embedded Sensors, Microchip Interfacing, Raspberry Pi, Arduino

Work Experience

Operating Systems Developer
Sept 2020 - Dec 2020
Blackberry | QNX
Ottawa, ON

- Covered over **3K** lines of QNX's IO functionality source code with **unit test scripts** and fixed bugs discovered by tests

Backend Developer
Jan 2020 - April 2020
Clearbanc | Ecommerce
Toronto, ON

- Migrated data warehouse streaming queues from **GCP PubSub** to **RabbitMQ** implementation and deployed the queue jobs along with **Nodeport** service, **health checks** and **autoscaler** pods to **GKE** cluster
- Implemented error exchange in **RabbitMQ** to handle server logged errors and route them to appropriate error queues and developed api-specific error classes, resulting in more organized and detailed error logging

Full-Stack Web Developer
April 2019 - Aug 2019
Ctrl V | Virtual Reality
Waterloo, ON

- Wrote **batch** and **streaming import jobs** that compile customer signup and gaming statistics and store it in Cloud SQL
- Created **authenticated** developer portal that organizes user statistics into detailed **data visualisations** and summaries

Teams

Technical Teams Software Lead - *C++, C, Go, JavaScript, Raspberry Pi, Arduino*
May 2019 - Jan 2020
SpaceX Hyperloop Pod Competition
Waterloop

- Used various communication protocols, including **I2C**, **SPI**, **CAN** and **TCP** to relay data between the Embedded, Pod and Desktop systems, creating a fast, reliable global **communication pipeline** that connects all components
- Using **watchdogs**, implemented **master-slave failover** architecture that saves system after controller connection fails

Projects

Quadris - *C++, GTKmm, GNU Make*
August 2020

- **Memory-leak-free** application with use of **RAII**, Strong Exception guarantees, **STL** containers and **smart pointers**
- Applied industry level **OOP** standards such as **Observer**, **Strategy**, **Singleton** and **Factory** patterns in an **MVC** architecture

Airspace - *JavaScript, SQL, GCP, Python, Pandas, React*
August 2020

- **Decreased** query times by more than **2x** by implementing **3D R-Tree Spatial Indexing** on geographical location of airports
- Wrote **pandas ETL pipeline** to normalize and clean data, then migrated data to **GCP's Cloud SQL** using **PyMySQL**

Pipelined MIPS Processor using FPGA - *Verilog*
April 2020

- **32-bit, 5-stage pipelined** processor, complete with instruction memory set, registers, data memory, ALU and CUs
- Programmed **Forwarding**, **Stall Control**, and **Flush Control** units to solve data and control hazards resulting from pipelines

Hate Speech Detector - *Python, NLP, Azure, Flask*
Sept 2019

- Designed web app using **Flask** microframework that evaluates level of offensiveness in text input using **NLP model** and **MS Azure's Speech Recognition API**, and displays evaluations of each sentence with dynamic feedback in a table

Education

University of Waterloo
Sept 2018 - Present
Candidate for Bachelor of Software Engineering, Honours | ***GPA: 91.0%***
Waterloo, ON
Pursuing AI Specialization Option, Combinatorics and Optimization Minor
Data Structures • Algorithms • Operating Systems • Database Management • Computational Statistics • Linear Models • Optimization

Awards

Governor General's Academic Medal • Presidents Scholarship of Distinction • Waterloo County Scholarship