[Carl Shen]

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Highlights

High achieving computer engineering student at the University of Waterloo, ranking 2nd in my class last term and achieving a 93.06% cumulative average.

Quick learner, passionate about exploring interesting technologies, including previous experience learning and using technologies like Apache Spark and Microsoft Azure through meaningful coop experiences and independent projects.

Co-author of 2 technical publications, with experience investigating cutting edge concepts through various research experiences and independent projects.

Experience

SAP — Software Developer | Big Data Tooling Team — May - Aug 2017

Full stack JavaScript development in a Node.js environment for the SAP HANA Database Explorer web app, including development related to displaying, filtering, and simple dynamic analysis of big datasets.

Designed and implemented a SQL debugging interface for procedures/functions, providing previously unavailable functionality, which increased usage of the tool.

University of Waterloo — Undergraduate Research Assistant | Department of ECE | Dr. Vincent Gaudet — Jan - Apr 2017

Used the OpenMP API in C to increase scalability/parallelism of custom LDPC decoder algorithm simulation/analysis software, improving performance 4-fold.

Communications Research Centre Canada — Junior Engineering | Network Applications Group — May - Aug 2017

Development in Java, Python, and C# of applications, systems, and data analysis scripts that leveraged Microsoft Azure, SQL Server, and Apache Spark for a radio spectrum environment analysis testbed system.

Built an automated batch processing data analysis flow for monitoring WiFi/LTE usage, improving scalability, and execution time from 5 hours to 15 minutes.

Tigercat — Software Developer | Telematics Team — Jan - Apr 2016

C# development of applications for telematics diagnostics, monitoring, and testing purposes, including the development of a new internal desktop tool.

Designed and developed a tool and service for importing, decrypting, and visualizing detailed SQLite log data from telematics devices.

Skills

Languages — Java | JavaScript | C# | Python | C++ | C | SQL | HTML/CSS

Technologies — Apache Spark | Node.js | Microsoft Azure | SAP HANA | OpenSSL Weka Machine Learning | jQuery | Android

Education

University of Waterloo — BASc Cand (2020) | 2B Computer Engineering

Cumulative Avg: 93.06% | GPA: 3.98/4.0

Dean's Honour List: 2A, 1B, 1A

2A — Rank: 2/163 | Avg: 92.54%

Publications

Cluster Computing 2017 (Vol. 20) — A user behavior prediction model based on parallel neural network and k-nearest neighbor algorithms

G. Xu, C. Shen, M. Liu, F. Zhang, W.Shen

IEEE CSCWD 2017 — A novel WiFi-based indoor localization system

G. Shen, X. Yin, C. Shen, X. Wang

Awards

Microsoft Tuition Scholarship (2017)

President's Research Award (2017)

SFF Conference Participation Grant (2017)

Richard & Elizabeth Madter Engineering Entrance Scholarship (2015)

President's Scholarship of Distinction (2015)

PEO London Chapter Scholarship (2015)

Projects

Spatial Data Visualization Tool — A prototype data analysis tool for dynamically filtering, aggregating, and visualizing spatial data based on a map's zoom and bounds.

Consisted of a JavaScript user interface (leveraging Leaflet and Chart.js libraries) interfacing with an Apache Druid data store, and leveraging a Geohash algorithm for spatial indexing.

BikeSafe — A Pebble watch app (written in C) that detected arm gestures from cyclists based on accelerometer data.

CryptoServer — A ReSTful C# server that allows clients to upload and decrypt/encrypt files using stored private keys.

Twitter Trends Analyzer — A Spark Streaming script that performs basic data analysis on tweets related to a search term.

Dead Reckoning Navigation App — An Android app that navigates a user within pre-mapped indoor rooms using a heuristic route-finding algorithm, and tracks a user's position using an accelerometer-based step displacement algorithm.

SleepForce — A smart bed monitoring system that recognizes bed-related activities based on data from force sensors using a supervised machine learning generated decision tree.

A Java program interfacing with force sensors via a ZigBee node.