[CARL SHEN]

226-700-3906 | c42shen@uwaterloo.ca | ece.uwaterloo.ca/~c42shen | linkedin.com/in/shencarl

EXPERIENCE

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

Full stack JavaScript/Node.js development on the SAP HANA Database Explorer web app, including designing 5 major user-requested features related to browsing, viewing, and debugging database objects and data.

Implemented a new data preview interface for dynamically visualizing common data analysis operations, increasing retainment of users by enabling the generation of graphical reports within the in-app data preview workflow.

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

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

Communications Research Centre Canada — Junior Engineering | Network Applications Group — Sep - Dec 2016

Development in Java, Python, and C# of applications and data analysis systems leveraging Apache Spark and Microsoft Azure for a radio spectrum usage analysis system built on a testbed system of radio spectrum sniffer sensors.

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

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

Development of C# applications for monitoring and visualizing data from telematics devices, including a new streamlined diagnostics workflow used by most technicians for importing and viewing detailed diagnostics log data.

Built a RESTful cryptography server, simplifying the process for importing SQLite telematics data by creating a less manual decryption workflow.

PROJECTS

Spatial Data Viz — A JavaScript data analysis tool interfacing with an Apache Druid data store using a Geohash database index for dynamically filtering and aggregating data based on a Leaflet map control's zoom level and bounds.

Twitter Trends Analyzer — A Java Spark Streaming script that performs basic data analysis of trends about tweets related to a search phrase.

Dead Reckoning Navigation App — An Android app for navigating and tracking a user within pre-mapped rooms using a heuristic-based route-finding algorithm and an accelerometer data-based step displacement algorithm.

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

SleepForce — A Java program interfacing with force sensors via a Zigbee node and implementing a decision tree generated using a Weka supervised machine learning algorithm to recognize and monitor bed and sleep-related activities.

SKILLS

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

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

EDUCATION

University of Waterloo — BASc Candidate | 2B Computer Engineering — Sep 2015 - Apr 2020 (Expected)

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 Iss 2) — 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)

Sandford Fleming Foundation Conference Participation Grant (2017)

Coop Student of the Year Nominee (2016)

Richard & Elizabeth Madter Engineering Entrance Scholarship (2015)

President's Scholarship of Distinction and President's Research Award (2015)

PEO London Chapter Scholarship (2015)

INTERESTS

Internet of Things | Machine Learning Human-machine interfaces | Big Data Sports (Hockey, Ping pong) | Travelling