[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 development for the SAP HANA Database Explorer Node.js web app, leveraging SAP UI5 and WATT frameworks, including development of tools related to displaying, filtering, and simple dynamic analysis of big datasets.

Built a SQL debugging interface for procedures and 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.

Designed and implemented a new automated batch processing data analysis flow for monitoring WiFi and LTE usage, improving scalability and reducing execution time from about 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 system for importing, decrypting, and visualizing detailed SQLite log data from telematics devices, providing a simplified diagnostics work flow used by about 25% of employees.

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%

1B — Rank: 2/160 | Avg: 95.2%

SKILLS

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

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

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 and Elizabeth Madter Faculty of Engineering Entrance Scholarship (2015)

President's Scholarship of Distinction (2015)

PEO London Chapter Scholarship (2015)

INTERESTS

Hockey, Ping pong, Sports analytics, Board games, Travelling, Game of Thrones

Internet of Things, Big Data, Human-machine interfaces, Cooperative systems

PROJECTS

Spatial-Temporal Data Visualization Tool — A prototype data visualization tool for on-demand, user-driven analysis and aggregation of spatial-temporal data, dynamically filtering and aggregating data based on a map view's zoom level and bounds, as well as a date-time slider control.

Consisted of a JavaScript user interface (using Leaflet and Chart.js libraries) interacting with an Apache Druid data layer, and leveraging a Geohash geospatial indexing algorithm.

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 Indoor Navigation App — An Android app that for navigating a user to a destination within pre-mapped indoor rooms that provides directions using a heuristic-based route finding algorithm, and tracks a user's position using step counting and orientation detection algorithms.

SleepForce — A smart bed monitoring system for monitoring sleep and bed-related activities, composed of a Java application interfacing with force sensors via a ZigBee node.

Used a decision tree algorithm generated from a supervised machine learning tool (Weka) for recognizing the activities.