[CARL SHEN]

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

[Highlights]

Fast learner who has excelled as a computer engineering student at the University of Waterloo with a 93.1% average, ranking 2nd in my class.

Learning enthusiast, with experience using cutting edge big data and Internet of Things technologies, including coauthoring 2 publications, as well as interesting and meaningful personal and work term projects.

[Experience]

SAP – Software Developer | Big Data Tooling – May to Aug 2017
Designed and developed features and bug fixes for the HANA Database Explorer web app using Javascript within a Node.js environment.

Implemented a debug editor to interface with existing debugger service.

Designed and revamped big data tabular data preview filtering features.

Improved catalog browser for viewing databases and schema objects.

University of Waterloo – Undergraduate Research Assistant | Department of ECE | Dr. Vincent Gaudet – Jan to Apr 2017
Improved scalability and performance of LDPC decoder algorithm simulation software in C by using OpenMP to increase parallelism.

Communication's Research Centre Canada – Junior Engineering | Network Applications – Sep to Dec 2016
Developed Java, Python, and C# applications for the Spectrum Environment Analysis system using Apache Spark and Microsoft Azure.

Implemented data analysis algorithms for automated batch processing of sensor data using Spark, Azure Data Factory, and SQL Server, improving scalability, and execution time from 3 hours to 5 minutes.

Developed a prototype real time sensor manager service using Spark Streaming to handle Azure Event Hub sensor status events.

Designed and built prototype data analysis flow for aggregating and producing on-demand reports from WiFi sniffer data using Apache Spark, a Python ReST service, and a custom Javascript user interface.

Tigercat – Software Developer | Telematics – Jan to Apr 2016
Designed and built features of a C# application for monitoring data from telematics devices, including a tool and service to decrypt, import, visualize, and export data from detailed diagnostic log files.

[Projects]

Dynamic Geospatial Data Analysis Visualization – Leveraged Apache Spark, Apache Druid, Leaflet, and a Geohash algorithm to build an interactive data visualization tool for dynamically aggregating, filtering, and processing location and time stamped data.

Dead Reckoning Indoor Navigation Android App – Implemented step detection and route finding algorithms to provide directions and track a user's position within pre-mapped indoor rooms

Smart Bed Monitoring System – Implemented a supervised machine learning generated decision tree algorithm in Java that used real-time force sensor data from a ZigBee node to monitor bed-related activities.

[Skills]

Languages – Java | Javascript | C# | Python | C++ | Matlab | Assembly

Technologies/Frameworks – SAP HANA | Apache Spark | Microsoft Azure | Node.js | Hadoop | Android

Concepts – AJAX | ReST | OData | SQL | MVC | Geospatial prefix trees | Machine Learning | Cryptography

[Awards]

Engineering Upper Year Scholarship
Microsoft Tuition Scholarship
Sandford Fleming Foundation Conference Participation Grant
ECE Term Dean's Honor List
Outstanding Coop Work Term Performance Evaluation
Richard and Elizabeth Madter Engineering Entrance Scholarship
President's Scholarship of Distinction and Research Award
PEO London Chapter Scholarship

[Publications]

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

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

[Education]

University of Waterloo – BASc Candidate | 2B Computer Engineering – Expected 2020
Cumulative Average: 93.1%
2A Rank: 2/163, Average: 91.4%

Grocery List Facebook Chatbot – Developed chat bot to parse message based commands to update SQLite database lists.

C# ReST Cryptography Server – Built service that handled requests to upload, decrypt, and encrypt files with unique expiring session IDs.