CARL SHEN

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SKILLS

Languages	–	Java, C++, C#, JavaScript, Python, PHP, C, Matlab, R, SQL
Concepts & Technologies	–	*Distributed computing*: Apache Spark, Hadoop, CUDA; *Machine Learning*: Spark MLlib, Weka; *Stream processing*: Apache Storm, Apache Kafka; *Other*: Azure, Redis, NoSQL, Node.js

EXPERIENCE

Yahoo Sports – Daily Fantasy Backend Team – Software Engineering Intern   Sunnyvale, *CA* | Jan - Apr *2018*

- Owned and built a *live projections feature* within the Daily Fantasy platform by implementing a heuristic algorithm using an *Apache Storm topology* with a *Redis data store*, which improved the live contest user experience, resulting in increased user engagement.
- Developed a suite of APIs using *Jersey/Jackson* in *Java* to implement an *automated contest creation flow* that replaced a manual process that took over an hour per day.
- Helped lead a three person team responsible for creating a *new casual live fantasy sports platform*, which involved designing, developing, and deploying infrastructures, schemas, and APIs.

SAP – Big Data Tooling Team – Software Developer Intern   Waterloo, *ON* | May - Aug *2017*

- Implemented a *new advanced data preview interface* within the Database Explorer web app by building APIs within a *Node.js backend* as well as frontend interfaces using *SAP UI5*; tool was specialized for building queries that leveraged *SAP HANA*'s high speed in memory data retrieval operations.

Communications Research Centre Canada – Software Engineering Intern   Ottawa, *ON* | Sep - Dec *2016*

- Created an *automated data engineering pipeline* for a city wide spectrum monitoring system by integrating *Apache Spark* data analytics scripts and an *Azure Data Factory*, reducing execution time by about 10x.
- Led a *data analysis framework transfer* from Matlab to Spark by deploying resources in Azure, porting existing scripts, and running Spark tutorial sessions as well as providing informal guidance.

EDUCATION

University of Waterloo – BSE Candidate – 2B Software Engineering   Waterloo, *ON* | Expected Apr *2021*

- Overall GPA: 3.98 / 4 | Cumulative Average: 93.42% | 2B Computer Engineering Class Rank: 1 / 164
- First in Class Scholarship, Microsoft Tuition Scholarship, President's Research Award, Madter Entrance Scholarship
- Have contributed to groups in *distributed systems* and *stochastic decoding* fields as an undergraduate researcher.
- Transferred from Computer Engineering to Software Engineering in May 2018.

PROJECTS

Spark Hockey Analytics   *2018*

- Using *Apache Spark (Core, Streaming, MLlib, GraphX)* and *Apache Kafka* to process data from NHL APIs for hockey analytics projects, including a "Redzone"-like *real time scheduling script* for live NHL games, as well as a *projected points machine learning model*.

Interactive Spatial Data Visualization Tool   *2017*

- Created an interactive data visualization tool for dynamic filtering and aggregation of spatial data on a map view by leveraging a *Geohash geocoding algorithm* as a spatial index within an *Apache Druid NoSQL data store*.

User Behavior Prediction Model (Cluster Computing 2017 Vol 20 Iss 2 | DOI 10.1007/s10586-017-0749-z)   *2016*

- Implemented components of a novel smart home user behavior prediction model using a *MapReduce/Hadoop framework* to parallelize the algorithms, improving execution speed by up to 5x.

Smart Bed Monitoring System   *2015*

- Built a system to recognize and monitor bed and sleep related activity by implementing a decision tree generated using the *Weka machine learning library* on an experimentally gathered supervised training data set.