CARL SHEN

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SKILLS

Languages	–	Java, C++, C#, JavaScript, Python, PHP, C, SQL, Matlab, R
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 to enhance the Daily Fantasy platform's live contest user experience by using an ***Apache Storm topology*** and leveraging a ***Redis data store*** to implement a heuristic algorithm, resulting in increased user engagement, as measured via A/B bucket testing.
- Implemented an automated contest creation flow that replaced an hour-long, daily process by adding a set of APIs within a ***Jersey/Jackson & Datanucleus JDO/MySQL backend framework***.
- Created a new casual fantasy sports platform as part of a three-person backend team, which involved designing specs and schemas, as well as deploying initial internal and external infrastructures.

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

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

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

- Created an automated data engineering pipeline within a spectrum monitoring system that integrated ***Apache Spark data analytics scripts*** using an ***Azure Data Factory***, reducing execution time by about 10x.
- Led a migration of my team's data analytics framework from Matlab to Spark, which involved setting up and deploying resources in Azure, as well as running weekly Spark tutorial sessions.

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***
- Awards – First in Class Scholarship (2018), Microsoft Tuition Scholarship (2017), President's Research Award (2017)
- Undergraduate Research Assistantships – Distributed Systems Lab, Stochastic Decoding Group

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.