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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.