CARL SHEN

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SKILLS

Languages – Java, C++, C#, JavaScript, Python, PHP, C, SQL, Matlab, R
Technologies – Spark (Core, Streaming, MLlib), Storm, Kafka, Azure, Hadoop, Redis, Node.js, Jersey

EXPERIENCE

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

- Backend platform and API development in Java, integrating with MySQL, Apache Storm, Redis, and a central messaging queue to build out features in the Yahoo Sports Daily Fantasy and other casual fantasy products.
- Developed an automated contest creation flow that replaced a manual process that took over an hour per day.
- Built a live projections feature with APIs reading from Redis by implementing a heuristic algorithm using an Apache Storm topology that persisted data in Redis, improving the live contest experience and resulting in increased user engagement (number of visits and time per visit).
- Designed architecture and schemas, and developed backend infrastructure and APIs using Java, Storm, and MySQL to build out a new mobile-first casual live fantasy sports game.

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

- Full stack JavaScript development of features for a customer facing Database Explorer web app.
- Implemented a new interactive advanced data preview interface specializing in building queries leveraging SAP HANA's high speed in memory operations that provided users with a quick option for exploring and visualizing data. Development involved building APIs within a Node.js backend as well as frontend interfaces using SAP UI5.

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

- Prototyping and development in Java and C# and using Apache Spark and Microsoft Azure for data engineering applications to build out a city wide radio spectrum usage testbed system.
- Created an automated batch data analysis pipeline integrating Apache Spark data analytics scripts and an Azure Data Factory (using a C# custom activity), reducing execution time from about 5 hours to 30 minutes.

EDUCATION

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

- Cumulative Average: 93.42% | Overall GPA: 3.98 / 4 | 2B Computer Engineering Class Rank: 1 / 164
- Undergraduate Research Assistant – contributed to groups focused on distributed systems & stochastic decoding.
- Awards – First in Class Scholarship, Engineering Upper Year Scholarship, Microsoft Tuition Scholarship, President's Research Award, President's Scholarship of Distinction, Madter Engineering Entrance Scholarship

PROJECTS

Spark Hockey Analytics *2018*

- Using Apache Spark (Core, Streaming, Machine Learning lib) and Apache Kafka to process data from NHL APIs for hockey analytics projects, including a "Redzone" real time scheduling/watching recommendations script for live NHL games, as well as a projected points machine learning model.

Spatial Data Visualization Tool *2017*

- Created an interactive data visualization tool for dynamically filtering and aggregating spatial data on a map view based on zoom level and bounds by leveraging a Geohash spatial index within an Apache Druid 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 and Hadoop framework to parallelize the algorithms, significantly improving speed of execution.

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.