SANAT BHALLA

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EXPERIENCE

Embedded Software Developer — ***Waterloo, ON (Remote)***
Ford Motor Company — ***Jan 2021 - Present***

- Developed the UI framework for the 10", 12" and 15" infotainment systems of Ford Mustang Mach E and F-150 using React.js, JavaScript and TypeScript
- Implemented the Observable pattern in React.js to improve the code scalability of Towing and Trailer Blind Spot feature on the latest launch of Ford F-150
- Worked with micro-hooks in React.js to separate the components based on business logic and leverage the code coverage during unit testing
- Developed C/C++ modules to render React Native components on the Unreal Engine using the MQ and TCP client broker to decrease the screen startup time by 55% compared to the web
- Developed a customized animation library (Bezier Easing) using C/C++ and used it to create loading-dots in React Native with a broder flexibility than CSS
- Made use of a customized Flatbuffer repository in C/C++ to tailor the styling attributes and completely replace CSS and enhance efficiency
-Developed unit tests for JavaScript and C/C++ modules using Jest and Gtest respectively

Data Engineer — ***Ottawa, ON (Remote)***
Innovapost Inc. — ***May - Aug 2021***

- Worked on a continuous ongoing project to shift all the Canada Post data from Legacy Oracle Servers to the Cloud Databases in an Agile and Scrum format
- Developed Initial and Delta Load ELT Pipelines using Python that performed various transformations to move data from Oracle to Azure SQL Server
- Used Azure Data Factory as an Orchestrator to accommodate the pipeline and made Spark API calls to trigger Databrick notebooks
- Used Azure DevOps to automate the CI/CD pipeline for the latest builds and releases
- Developed and Documented unit tests to check the working of different parts of the Data Pipeline at the functional level

Coding Instructor — ***Waterloo, ON (Remote)***
CoderCookies — ***Sept - Jan 2022***

- Introduced basic to advanced level concepts (including OOP, Data Structures and memory management) of programming in C/C++, Python, JavaScript to intermediate students

PROJECTS

Hydra Card Game | C/C++ — ***Aug 2021***

(Private Repository, message to see)

- Developed the backend of a computerized card game using Object-Oriented Programming and advanced C/C++ concepts such as smart pointers, inheritance, polymorphism
- Managed memory on the heap using smart pointers improving efficiency
- Implemented a user friendly MVC (Model View Controller) design pattern that promoted high cohesion, low coupling and the concept of encapsulation and information hiding

Movie Recommender | Python — ***Feb 2021***

- Developed a Machine Learning Movie Recommendation System using Python based on the concept of **User-User Collaborative Filtering**
- Calculated the Similarity Index between users based on their Pearson Correlation
- Used Python Libraries such as Numpy and Pandas to clean and interact with the data

Stock Movement Visualizer | JavaScript — ***Dec 2020***

- Developed an app to visualize changes in stock prices using MERN stack
- Developed a Node.js server and connected to a MongoDB database
- Integrated a JavaScript backend to scrape the data and make CRUD API calls to the database using Node.js
- Hosted the website using Heroku and deployed the backend using GitHub Repositories

EDUCATION

University of Waterloo
Waterloo, Canada
2020 - 25 (expected)
Candidate for Bachelor of Computer Science
Member of UW Data Science Club
Member of UW Comp Science Club

DPS Kalinga
Cuttack, India
2006 - 20
AISSE (class 10) - 92.4%
AISSCE (class 12) - 96.6%

SKILLS

Languages
Python, C/C++, JavaScript, TypeScript, SQL, R, HTML/CSS, DrRacket

Data Science / Engineering
Scikit-learn, MySQL, Apache Spark, Databricks, MongoDB

Software/Web Development
React.js, React Native, Angular, Bootstrap, Node.js, UnrealEngine, Flatbuffers

Others
Linux, Git, GitHub, Cloud Services (Azure, AWS, GCP)

ACTIVITIES

Data Science Club (2020 - 21)
- Developed a **Data Visualization Project on NBA Statistics** using Jupyter Notebooks for the UW Data Science club that helped me understand the basics of Machine Learning models
- Used Python Libraries such as Numpy and Pandas to explore and clean the data
- Used Plotly to visualize and present the data to draw conclusions

School Head Boy (2018 - 20)
- Headed the students' council (2018-20) and organized various activities as well as planned large events for the school
- Nominated by the school for Indo-Russian meet held at New Delhi, India