Rajan Sawhney

URL: https://rajan3012.github.io

CONTACT INFORMATION:
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EDUCATION:

M.Sc in Computer and Information Science, University of Oregon (Graduated June 2017)
Relevant Coursework: Algorithms and Complexity, Advance Data Structures, AI, Data Science, Probabilistic Methods in AI, Distributed Systems, Software Engineering and User Interfaces
B.E Information Technology, University of Pune, India (Graduated May 2013)

TECHNICAL SKILLS:

Programming and Scripting Languages: C, C++, Python, Java, JavaScript, SQL, Matlab, R, OCaml, Bash
Frameworks and Development Platforms: ReactJS, NodeJS, Express, AWS, Weka, Unity, Android Studio, Hadoop, Arduino, Eclipse, Visual Studio Code

PROFESSIONAL EXPERIENCE:

Graduate Research Fellow, HPCL, University of Oregon July 2016 – June 2017

- Worked as a research member, at the High-Performance Computing Lab (HPCL), on extending AutoPerf and TAU functionalities for auto-tuning performance of simulation of large-scale scientific experiments with Dr. Boyana Norris, a project funded by the Department of Energy (DoE)
- Used Python and Shell scripting for tracing and sampling data from experiments conducted on Edison- the NERSC supercomputer and used Machine Learning techniques to provide code improvement suggestions

Graduate Teaching Fellow, University of Oregon Dec 2015 – June 2016

- Taught students HTML/CSS and JavaScript as part of the CIS 111 - Introduction to Web Programming course under Prof. Patrick Holleran
- Taught students to program Raspberry PIs using Python as an introduction to IoT as part of the Hands on with Internet of Things(IoT) course under Prof. Stephen Fickas

Software Engineer, Accenture Oct 2013 – Dec 2014

- SAP ABAP Technical Analyst - Performed analysis and code changes in ABAP programming to correct functionality and usability issues related to the system. Successfully resolved over 50 critical system related issues affecting the client's business

PROJECTS:

Internet of Things – Cluster controlled autonomous vehicles

- Developed a IoT system that allows Arduino based Ringo robots to work in communication with a central server (MQTT). Used Ricart-Agrawala and Supervisor-worker algorithms to develop the system
- Developed using Python, Raspberry PIs to form the cluster and Arduino for robot programming to simulate autonomous vehicles

Virtual Buttons – Android app

- Created an Android application using Unity and Vuforia to create Virtual Buttons to interact in an augmented-reality setting (download here: https://github.com/rajan3012/Virtual-Buttons-in-AR)

YouTube Data Analyzer using Hadoop

- Developed a Big Data analyzer for YouTube videos using Hadoop MapReduce to obtain top viewed and top categories from around 4,000,000 records in under 10 seconds

Compiler development

- Built a compiler in C++ to translate from Quack, an object oriented strongly types language, to C. End project included type checking for contra/covariance, recursion support, control flow with short circuit evaluation, and full polymorphism including dynamic dispatch mimicking C++ Virtual Method Tables

Face recognition using PCA, SVM and SOM

- Developed a MATLAB project to study various approaches used to address the face recognition problem like Principal Component Analysis(PCA), Support Vector Machine(SVM) and Self-Organizing Map(SOM)

Simulation of Random Walk using MPI

- Designed and implemented a parallel Random Walk Simulation in C++ that calculated an iteration of multiple random walks over a big graph data set with 10,000,000 edges in 20 seconds