Arsheya Raj

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EDUCATION

University of Washington – School of STEM (Bothell) — Bothell, WA
Master of Science in Computer Science and Software Engineering (GPA: 3.9/4.0) — August 2024
Birla Institute of Technology Mesra — Ranchi, India
Bachelor of Engineering in Information Technology (GPA: 3.82/4.0 (WES ICAP)) — June 2018

TECHNICAL SKILLS

Programming Languages: C/C++, SQL/PostgreSQL, Python, JavaScript, Java, C#, Shell Scripting, Swift
Cloud Computing Platforms: Amazon Web Services (**AWS**), Google Cloud Platform (**GCP**)
Certifications: **Google Cloud Certified - Digital Leader Developer** (Credential ID 61832205) [Nov 2022 - Nov2025]
Achievements: Qualified for **ACM ICPC Onsite Round** and **Google Code Jam in 2016 and 2017**, Participated in **SnackDown 2016, 2017, and 2021** conducted by Codechef. Qualified **RMO (Regional Mathematical Olympiad) 2013** and participated in **INMO (Indian National Mathematical Olympiad) 2014**.
Technical Skills: NVIDIA CUDA, OpenCV, React Native, React.js, Cloud Computing, Mobile Computing, Unity, Matlab, Big Data Concepts, Data Analysis.

EXPERIENCE

Chief Technology Officer - Vaccine Genie, Community Family and Internal Medicine — Nov 2024 - Present

- Defined the technology roadmap and led full-stack development using **React Native, Google Cloud APIs, Gemini AI, microservices, and healthcare standards (FHIR, HL7)** to enhance vaccination record management.
- **Achievements:** Winner – Sacia Digital Health Challenge 2023, University of Washington. Participant – Hollomon Health Innovation Challenge 2024 and 2025, Attended CES 2025.

CSS Grader and Peer Facilitator (Teaching Assistant), University of Washington Bothell

- Taught and supported 40+ students in **Database Systems (CSS 475)** and **Operating Systems (CSS 430 A)**, facilitating their understanding of key concepts. Additionally, guided 20+ students in **High-Performance Computing (CSS 535)**, focusing on advanced GPU and CUDA programming.

Freelance App Developer / React Native Developer, Self-Employed — April 2020 - April 2022

- Developed **Android and iOS applications using React Native, JavaScript, and Google Cloud Platform,** incorporating features like video conferencing, content sharing, and quiz portals.
- Managed **alpha, beta, and closed testing** phases, and diagnosed and fixed 10 critical bugs in a client's quiz-portal React Native app.
- Contributed to the creation of 6 **system design specifications** for client web and native applications.

Business Technology Analyst, ZS Associates — May 2018 - September 2019

- Contributed to developing automated and scalable solutions for risk-based pricing models, **helping a pharmaceutical client optimize profitability and decision-making.**
- Contributed to 3 releases, optimizing backend processes and **automating ETL (5% runtime reduction) on AWS.**
- **Integrated data from multiple sources into Reltio MDM using Node.js and Java.**

TECHNICAL PROJECTS/THESIS

[Master's Thesis] **Innovative Rehabilitation Approach for Upper Limb Neurologic Conditions Using Mixed-Reality Simulation and EEG/EMG Biofeedback**

- My research focused on *developing an **AR/MR** rehabilitation environment for stroke patients, using **EEG & EMG** data processed by **machine learning models (**CNN, FNN, RNN, SVM, and LSTM **)** for motor task classification, as part of the "Smart NeuroRehab Ecosystem."*

[Course Project] **CUDA-Accelerated K-Means**, HPC — Winter 2023

- Implemented an efficient k-means clustering algorithm using CUDA, leveraging GPU's parallel processing capabilities with various **thread and block configurations** to handle **datasets of up to one million data points** in a 2D space (x and y axes).

[Course Project] **Enhanced Vocabulary Trees for Real-Time Object Recognition in Image and Video Streams,** Advanced Topics in Computer Vision — Spring 2023

- Implemented scalable image recognition using Vocabulary Tree-inspired hierarchical k-means clustering and feature detectors (SIFT, ORB, AKAZE, and BRISK.)

[Project] **Real-time Particle Simulation with CUDA** — In-Progress

- Developed a system that uses CUDA to accelerate the simulation of particle systems. This enables real-time visualization and analysis of complex fluid dynamics or physics simulations on local hardware.