RUCHI DHAMNANI

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Education

UNIVERSITY OF COLORADO BOULDER

Master of Science in Computer Science

Aug 2022 - May 2024

INTERNATIONAL INSTITUTE OF INFORMATION TECHNOLOGY (IIIT) RAIPUR

B. Tech. in Electronics and Communication Engineering

Aug 2016 - Jun 2020 | GPA - 8.18/10.0

- Teaching Assistant,Operating Systems, IIIT Raipur.

Full-time Work Experience

DELOITTE

Dec 2020 – Jun 2022

Analyst, Software Engineer | Bengaluru, India

- Implemented various health check APIs to ensure proper functioning of different components of the Advisory's backend at regular intervals
- Logged the report generated by the health check APIs in a S3 bucket of AWS and implemented IAM policies for proper access management
- Implemented a UDP Socket in Java Script to log the data to S3 bucket. UDP Socket was used to ensure sparing use of resources
- Created a bot for automating configuration tasks through PYRFC and python scripting by connecting to client SAP systems

Internship Experience

INDUSOS

Jul – Nov 2020

Software Engineering Intern | Mumbai, India

- Implemented serverless functions (lambda) in python and hosted them on AWS SAM therefore reducing the cost of operation by **41%**
- The scheduled lambda reads daily configuration, prepares custom notifications for each user and saves it on redis
- The SAM-lambda helps the architecture provide better performance for **12-25** million users everyday

TECHNION, ISRAEL

Jan – Jun 2020

Research Intern | Haifa, Israel

- Designed a novel Neuromorphic data converter using synapses of Memristive devices (Y-Flash)
- Implementation of neuromorphic applications like Vector-Matrix Multiplication and Spike Time Dependent Plasticity in MATLAB
- Designed Digital to Analog Converter trained by fully digital feedback trained using **stochastic gradient descent**

NCTU, TAIWAN

Jun – Jul 2019

Summer Intern | Hsinchu, Taiwan

- Built software interface to analyze performance of various circuits
- Programmed in HSPICE and Compared performance of operational amplifier and different operational transconductance amplifiers

Honors & Awards

- **Applause and Spot Award** at Deloitte for extraordinary contribution to client delivarables, 2021.
- **Amazon Diversity Women's Coding Challenge**, In Top 15 out of 7380 in Jul. 2021 **[Link]** and Dec. 2021 **[Link]** .
- **Gold Certification (Programming)** at Deloitte Training Bootcamp for campus recruits, 2020.

Technical Skills

Proficient: C, C++, MATLAB, SQL, Git, JavaScript, Verilog
Comfortable: JQuery, ExpressJs, Python, Java, Numpy
Familiar: PHP, OpenCV

Research Papers

- Agrawal P., **Dhamnani R.**, Garg A., Tripathi S., Majumder M., "An Efficient Wireless Charging Technique Using Inductive and Resonant Circuits", VLSI Design and Test 2019, Communications in Computer and Information Science, vol 1066. Springer, Singapore **[Link]**
- Agrawal P., **Dhamnani R.**, Garg A., "Approximate Computing Techniques for Deep Neural Networks", International Workshop on the Physics of Semiconductor Devices, IWPSD 2019, Springer (Accepted)

Academic Projects

Bookstore Backend

Jul – Aug 2019

- Designed and Implemented RESTful APIs following MVC Architecture in Java Script using Express framework
- Created a data schema for storing all the relevant data and respective data models required to serve all functionalities of a bookstore
- Wrote test benches for entire codebase using JEST framework with over 80% code coverage and used SWAGGER for auto documentation

C Library

Jan – Mar 2019

- Designed and implemented a static C library for Big Integer operations with a makefile for easy integration and usage
- Implemented Big Integers in the form of character array and used dynamic memory allocation for efficiency and flexibility
- The library supports major mathematical functions like addition, subtraction, multiplication, division, factorial, and modulus

Approximate Computing

Jul – Nov 2018

- Proposed a Near-Zero Approximation Unit to predict and skip the near- zero multiplications under certain thresholds
- Designed 8*8 and 16*16 fixed point approximate multipliers and Leading Zero Count in Verilog henceforth implementing it on FPGA
- It has the potential to double the efficiency of DNNs with significant reduction in power consumption by avoiding multiplications of near-zero valued data for Multiplier Accumulator unit

Food Quality Tester

Jan – May 2018

- A device meant for checking the amount of harmful chemicals, pesticides and insecticides present in food items in real time
- Performed chemical test for detection of calcium carbide which is mostly present in fruits and is known for carcinogenic effects
- This idea was presented in a nationwide event (IICDC 2017) and it received a cash prize of **20,000 INR** for making it to semifinals