**Karan Gajwani**

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● <https://www.linkedin.com/in/karan-gajwani/>

**EDUCATION**

**Binghamton University, State University of New York, Thomas J. Watson School of Engineering and Applied Science GPA: 3.5/4**

*Master of Science in Computer Science* **Expected December 2019**

**Sarvajanik College of Engineering and Technology GPA: 7.83/10.00**

*Bachelor of Engineering in Electronics and Communication Engineering* **July 2013 - June 2017**

First Class with Distinction

**RELEVANT COURSEWORK Masters:** Algorithms**,** Computer Architecture, Data Mining, High Performance Computing, Wireless Sensor Networks, Machine Learning, Operating Systems **Bachelors:** Advanced Calculus, Embedded Systems, Data Communication and Networking, Wireless Communication, Analog Circuit Devices, Device Drivers, Computer Programming and Utilization, Digital Signal Processing

**TECHNICAL SKILLS**

**Languages:** C++, C, Java, Python, embedded C, Assembly (Basic), MATLAB

**Software and OS:** Eclipse, Android Studio, Git, Logisim, Linux, Vim, Visual Studio Code, Jupyter Notebook, PyCharm

**Additional:** TCP/IP familiarity, basic HTML, Office Suite, basic SQLite, digital circuit design, TensorFlow, Weka, Github.

**PROFESSIONAL EXPERIENCE**

**Hewlett Packard Enterprise, Android Trainee** | Mumbai, India **June 2016 - July 2016**

- Implemented a simple bank application in **Java** complete with features of balance check and balance withdrawal

- Submitted ‘Music Player’ made from scratch on **Android Studio** as part of final project.

- Awarded ‘**A**’ grade for accomplished work (highest possible grade was A+).

**ACADEMIC PROJECTS**

**Anomaly Detection in ECG using DSP**| SCET, Surat **June 2016 – May 2017**

- Analyzed ECG (Electrocardiograph) signal in **MATLAB** for final year group project

- Pioneered replication of ECG signal on DSP and used correlation of QRS complexes to detect anomaly and to filter the said signal with 90 percent success.

- Presented a research paper in National Conference and were awarded with honorable mention by organizing committee for group work.

**CPU Simulator**| Binghamton, NY **January 2018 – May 2018**

- Created a 5 Stage Pipeline in **Java** having following stages Fetch, Decode, Execute, Memory, Write Back.

- Simulated instructions such as Register-to-Register, Memory and Control flow handling data dependencies.

- Executed Register Renaming to eliminate false dependencies and Reorder Buffer to roll back to a stable state if the branch was mis-predicted by branch predictor.

**Offloading Computation over Web to Mobile Devices**| Binghamton, NY **January 2018 – May 2018**

- Appointed in charge to build an android application with help of **Android Studio** to do distributed computing for optimal utilization of mobile devices.

- Requirements were to fetch data from server and make changes as per end user requirements, then send the processed data back to server, and then job taker could be paid token currencies in form of QR code.

- Tested app on 100 different files with test-case of word replacement algorithm and proved it to be 10 times faster than a single PC for the same job.

**Time Series Data Mining** | Binghamton, NY **September 2018 – December 2018**

- Built a model to do time-series data trend prediction for purpose of E- commerce marketing in **Python**.

- Predicted sales of 100 key products over a period of next 29 days, with a dataset of 1000 products and 31490 customers extended over a period of 118 days.

- Model used for the project was SARIMA. I got enough accuracy to be among top 15 percentage students in class

**Parallel KNN**| Binghamton, NY **February 2019 - March 2019**

- Implemented a parallelized version of K- nearest neighbor algorithm using **C++11** thread API and K-D tree algorithm.

- Project involved intake and processing of data to tune of 20 million data points, calculating distance from input points and getting K nearest neighbors of said points.

**Non-Intuitive Nature of High Dimensional Spaces**| Binghamton, NY **March 2019 – April 2019**

- Sampled 100K uniformly distributed, random points within volume of a unit sphere with inverse transform method

- Created parallelized version of algorithm to prove the correctness of the idea presented in paper by Marck Khoury (link of the paper: https://marckhoury.github.io/counterintuitive-properties-of-high-dimensional-space/)

- Accomplished task in 8 seconds with help of **OpenMP** API on quad core machine instead of 32 seconds if I were to do same on single core machine.

**Neural Network in CUDA** | Binghamton, NY **April 2019 - May 2019**

- Used **CUDA API** **(C++)** to generate a Convolutional Neural Network for purpose of handwriting recognition applied on MNIST dataset.

- Achieved 92 percent accuracy in 2 minutes with training data of 60000 images and test of 10000 images

**LEADERSHIP EXPERIENCE**

**Symposium, SCET, Event Head** | Surat, India **August 2016- September 2016**

- Oversaw Coding event ‘Code - E - Azam’ for college tech fest ‘Symposium’.

- Organized a workshop to coach students in **C , C++** for the coding event.

- Officiated most successful coding related event in history of our college with record 82 participants.

**HONORS AND SOCIETIES**

**Dr Bhagwan Gajwani Scholarship Binghamton University** | Binghamton, NY **January 2018 – December 2018**

- Awarded a residential scholarship (worth $34,210) for year 2018 based on exemplary performance in standardized tests and undergraduate studies

**Association of Computing Machinery, Member |** Binghamton, NY

**Chess Club, Member |** Binghamton, NY