Kashyap Ravichandran

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EDUCATION

North Carolina State University **May 2021**
Master of Science Candidate - Computer Engineering 4.0/4.0
Relevant Coursework: Micro Architecture, ASIC Design with Verilog, ASIC Verification, Operating Systems Design, Algorithms, and Embedded Systems.

SSN College of Engineering, Chennai, India **May 2019**
Bachelor's in engineering – Electronics and Communication 8.36/10.0

TECHNICAL SKILLS

Languages: C, C++, Python, Embedded C, and Verilog
Software & Tools: Cadence Allegro, Cadence Spectre, Keil uVision, AutoCAD, Arduino, Raspberry Pi, git, CUDA, Modelsim, Synopsys
Proficient In: Computer Architecture, Designing Linux based Embedded Systems, Building ARM based Embedded Systems, RTOS/OS

INTERNSHIPS

IIT Madras, Chennai, India May 2018 – September 2018
Research Fellow

- Engineered the hardware and firmware for Take Note, a note-taking device for the visually impaired, available in South East Asian and African markets.
- Designed a software prototype for "Take Note" using python that translated braille into English and Tamil.
- Recognized as IIT Madras' Python Conference keynote speaker to present the product and accompanying software for over 500 people.

IBM India, Bangalore, India November 2017 – January 2018
Intern

- Formulated a machine learning model using IBM's cloud services that was able to classify whether logos were fraudulent or authentic.
- Inducted into IBM's Developer Champions Group to represent IBM in various institutions going forward.

Syrma Technology, Chennai, India May 2017 – June 2017
Intern

- Streamlined the company's production by automating their PCB assembly line that reduced the output fault rate.
- Devised a system to thaw frozen solder paste that reduced human error by 75%.

TECHNICAL PROJECTS

Simulation of a Skipper Type Microprocessor March 2020 – April 2020
Microarchitecture – North Carolina State University

- Increased the IPC of an Out of Order Processor by skipping over a difficult branch and fetching the correct instructions when its resolved.

Multi-Precision Artificial Neural Network October 2020
ASIC and FPGA Design with Verilog – North Carolina State University

- Designed an architecture that can handle multiple levels of precisions in a neural network which is interfaced with three SRAM structures, two to read from and one to write to.
- Explored the tradeoff between performance and logic area to minimize the delay-area product.

Dynamic Instruction Scheduling November 2019
Microarchitecture – North Carolina State University

- Simulated the execution of an out of order superscalar processor with Reservation Stations and Re-order Buffers using a C++ program.
- Studied the effects of the Reservation Stations' size and bandwidth of the processor on the IPC.

Controlling a LED Using a Multitouch Touch Screen – RTOS November 2019
Embedded Systems Architecture – North Carolina State University

- Programmed an inter-communication mechanism to share hardware resources between multiple threads, to increase responsiveness and reduce idle time.

Cache Simulator September 2019 – October 2019
Microarchitecture – North Carolina State University

- Analyzed the performance of a memory hierarchy simulator with L1 and L2 n-way set associative cache and L1 n-way set associative and a de-coupled sectored L2 cache.
- Observed the effect of cache and block size as well as associativity on miss rate and average access time.

XINU – Locks, Fork, Scheduling and Virtual Memory August 2020 – October 2020
Operating System Design – North Carolina State University

- Added features such as forking, Lottery Scheduling, MLFQ Scheduling, Locks and Mutexs, deadlock detection, priority inversion, and virtual memory to XINU's base code.

Assault Detection September 2018
Yet Another Hackathon!, Sri Venkateswara College of Engineering, Chennai

- Ideated and implemented a system within 24 hours to detect physical assaults, falls and accidents using Raspberry Pi, gyroscope and accelerometer.
- People's Choice Award Winner.