




Sejal Chauhan

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CONNECT @

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SKILLS

PROGRAMMING

C • C++ • CUDA • Python
R • MySQL • Java Groovy
Matlab •

TOOLS

R studio • MyEclipse
Simulink • PSpice • Altera Quartus
Xilinx SDK • ModelSim • Verilog

HARDWARE

PCI Device Drivers
Quadro GPU
Network Simulator
Xilinx FPGA • Raspberry Pi

OTHERS

802.11 Wireless Networking • RTOS
Linux • Embedded Systems
ARMv8 Architecture and Design •
• FEKO

COURSEWORK

GRADUATE

- Machine Learning
- Operating Systems
- Algorithm Design
- Distributed Systems
- Big Data Systems

UNDERGRADUATE

- Object Oriented Programming
- Basic Electronics Engineering
- Problem Solving and Computer Program
- Data Structures
- Probability Theory and Stochastic Processes
- Computer Architecture and Organization
- Computer Networks
- Microprocessor Systems
- Cellular and Mobile Communications

QUALCOMM

- ARMv8 Architecture and Design

ACTIVITIES

- [2016] Vice Chair of Women-ACM UW-Madison organized hackathon
- [2015] Board member of the Qualcomm Women in Engineering.
- [2012] Additional Secretary of the ECE association, NITW.

EDUCATION

UNIVERSITY OF WISCONSIN - MADISON

MS COMPUTER SCIENCE

August 2015 - Till date | Madison, Wisconsin

- Graduate Researcher at WiNGS: Wireless and Networking Systems lab
- Working on the *Smart Router* platform Paradrop to orchestrate multiple applications using Docker.
- Implemented a Bluetooth systems module on Raspberry Pi 2 with snappy ubuntu.

NATIONAL INSTITUTE OF TECHNOLOGY, WARANGAL

B.TECH ELECTRONICS AND COMMUNICATION ENGINEERING

August 2008 - May 2012 | Warangal, India

- Concentrated on projects and internships in the areas of Embedded systems' design and development.

EXPERIENCE

HEWLETT PACKARD LABS | SYSTEMS RESEARCHER INTERN

June 2016 - August 2016 | California, Palo Alto

- Worked on improving the performance of Deep Learning workloads in their training phase by reducing the latency and bandwidth incurred on GPUs.
- Worked with PCIe device drivers and wrote CUDA benchmarks.

EPISTEMIC GAMES | GRADUATE RESEARCHER

August 2015 - January 2016 | Wisconsin, Madison

- Worked with Epistemic Games in Wisconsin Center for Educational Research (WCER) maintaining the *autoencoder*.
- Also involved in optimizing the framework which fetches the chat data using Groovy from MySQL Database using R.

QUALCOMM | ENGINEER

July 2012 - July 2015 | Hyderabad, India

- Involved in design and development of firmware and Linux device drivers for Qualcomm's wireless chipsets.
- 802.11r Scanning and implementation of Android's Preferred Network Offload support in firmware.
- Memory optimizations and power save mechanisms that enabled faster connectivity. This led to a lesser die size and longer battery life with prolonged connectivity.
- Wrote scripts to analyze the memory dump for faster triaging. Used Lauterbach TRACE32 to analyze system stability issues.

QUALCOMM | INDUSTRIAL INTERN

May 2011 - July 2011 | Hyderabad, India

- Developed an understanding of 802.11 MAC implementation in the wireless device driver on both station and Soft Access Point.
- Worked on fixing Klocwork issues involving memory leaks, deallocation, dereferencing of null pointers and uninitialized variables that reduced the release cycle time, resource utilization and possible customer issues.
- Selected as college campus ambassador for Qualcomm.

AWARDS & RECOGNITION

- [2015] Won fastest Sorting competition in Operating Systems.
- [2014] QualStars:Qualcomm Employee Recognition program for excellent work done in Scan Engine and removing security, stability issues.
- [2009] 2nd in Litmux, Lantern and Mock Press oratory, language and communication skills.
- [2006] Awarded National Scholarship by the State Governor of India: Exceptional performance in class X CBSE Board Examinations.
- [2003] Placed 3rd in shai (sparring) in the International South Asian Goju Ryu Karate Championship.

INDIAN INSTITUTE OF TECHNOLOGY, BOMBAY | SUMMER INTERN

May 2010 – July 2010 | Mumbai, India

- Development and Testing of Algorithms for Image and Video Compositing under Varying Illumination on Matlab.
- Worked on self-illumination of the moving objects in a video with the help of masks obtained by Stauffer Grimson and Chan Vese active contours' algorithm.
- Removed Automatic gain control effects of the camera to reduce noise. It helped in extracting the best mask for the moving object with the help of k-means clustering and kalman filters.

COMNET | INDUSTRIAL INTERNEE

November 2009 – December 2009 | Gurgaon, India

- Worked under "Activation, Discovery, Reconciliation of System" project which was an internationally funded project to discover network devices.
- It involved the reduction of the gap between MetaSolv Solution(M6), an inventory and order management platform that enables the strategic and cost-effective delivery of traditional and next-generation services over complex networks and A5 which is the activation part of actual network.

ACADEMIC PROJECTS & RESEARCH

EXOVOYAGE: PREDICTING HABITABILITY OF EXOPLANETS USING MACHINE LEARNING

August 2015 – December 2015 | UW-Madison, Wisconsin

- Prof. Mark Craven
- Leveraged the expectation-maximization with bootstrapping (EMB) algorithm to impute missing values in the NASA's dataset.
- Features included planet radius, planet density, planet surface, temperature, stellar luminosity, stellar temperature, planet orbit size, planet orbit period and planet mass.
- Evaluated the Naïve Bayes classifier with normal distribution and discretized features, bagging, random forest ensembles, on different training set sizes and 10 fold cross validation.
- Naïve Bayes with discretized features performed the best by reporting minimum number of false positives.

MIGRATING LATENCY ISSUES WITH TRANSPARENT HUGE PAGES

January 2015 – Till Date | UW-Madison, Wisconsin

- Prof. Mike Swift
- We are working on rethinking copy-on-write mechanisms and policies to reduce overhead of handling copy-on-write faults on large pages. These generic techniques can also be applied in the areas of File Systems where copy-on-write mechanisms are used for creating snapshots. We showcased our work in *Redis Conference 2016* held in San Fransisco.

TRADING ACCURACY FOR POWER WITH AN UNDER-DESIGNED MULTIPLIER ARCHITECTURE

December 2011 – May 2012 | Warangal, India

- Researched a novel multiplier architecture with tunable error characteristics, that leverages a modified inaccurate 2x2 multiplier as its building block.
- Our research showed that inaccurate multipliers achieve an average power saving of 31.78% – 45.4% over corresponding accurate multiplier designs, for an average error of 1.39%–3.32%.

DESIGN OF CONFORMAL ANTENNAS USING NEURAL NETWORKS

July 2011 – May 2012 | Warangal, India

- Used neural networks to predict the best possible dimensions of an antenna patch that can be used on a surface of a cylinder or a cone at a particular given resonant frequency.
- The predictions obtained from the neural networks were tested by designing and analyzing the antennas.

IMPLEMENTATION OF RANK ORDER FILTER TO IMPROVE IMAGE QUALITY

December 2010 – April 2011 | Warangal, India

- Implemented software emulation for 2-D Rank Order Filter to remove specks while preserving the edges on Cyclone II EP2C35 FPGA.
- To optimize for memory, image was first converted to a text file that was fed in SDRAM FIFO.
- Implemented by adapting the bit serial approach by pipelining and parallel computing, that helped reduce the total CPU time considerably.