Sejal Chauhan

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CONNECT @

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SKILLS

PROGRAMMING

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

TOOLS

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

HARDWARE

Altera Cyclone II EP2C35
Xilinx ML605 • Raspberry Pi

OTHERS

802.11 • RTOS • Linux
ARMv8 Architecture and Design • Embedded Systems

COURSEWORK

GRADUATE

- Machine Learning
- Advanced Operating Systems
- Algorithm Design

UNDERGRADUATE

- Data Structures
- Signal Transformations
- Network Analysis
- Probability Theory and Stochastic Processes
- Communication Theory
- Computer Networks
- Microprocessor Systems
- Cellular and Mobile Communications
- Operating Systems

QUALCOMM

- ARMv8 Architecture and Design

COURSE PROJECTS

- Machine Learning to identify Habitable Exoplanets
- Multi-threaded Web Server
- Kernel thread support for xv6 OS
- Implemented Shell and xv6 memory address space remapping
- MLFQ Scheduler for xv6 OS
- Linux kernel hacking

EDUCATION

UNIVERSITY OF WISCONSIN - MADISON

MS Computer Science
August 2015 - Till date | Madison, Wisconsin

- Focusing on research and development in Operating Systems, Machine Learning and Internet of Things.
- Implemented a Bluetooth Low Energy systems module on Raspberry Pi 2 with snappy Ubuntu for the start-up Paradrop(Exis). The aim is to develop a Bluetooth framework which the developers can use to make Bluetooth enabled Apps for the *Smart Router*.

NATIONAL INSTITUTE OF TECHNOLOGY, WARANGAL

B.Tech Electronics and Communication Engineering
August 2008 – May 2012 | Warangal, India

- Institute of National Importance. Received Academic Scholarship for Undergraduate studies.
- Concentrated on projects and internships in the areas of Embedded systems' design and development.

EXPERIENCE

EPISTEMIC GAMES | Graduate Research Assistant

August 2015 – Till Date | Wisconsin, Madison

- Working with Epistemic Games in Wisconsin Center for Educational Research (WCER) to enable students to simulate internship experience via online games. The work involves maintaining the *autoencoder*.
- Also involved in maintaining the framework which fetches the chat data using Groovy from MySQL Database.
- Work on porting some of the Groovy code to R for better performance.

QUALCOMM | Engineer

July 2012 – July 2015 | Hyderabad, India

- Primarily contributed to Qualcomm's Linux device driver and was the maintainer of 802.11r Scanning and implementation of Android's Preferred Network Offload support in firmware with Privacy feature.
- Used Lauterbach TRACE32 to analyze system stability issues and was the owner of wlan firmware stability. Wrote scripts to analyze the memory dump for faster triage.
- Worked on optimizing the scan engine and the firmware scheduler for optimal memory usage and power save.
- As an active member of Qualcomm Women in Science and Engineering (QWISE), organized various events including motivating talks by influential women in the field of Computer Science.

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 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.

ACTIVITIES

- Received scholarship from Google for the Ubiquity conference.
- Member of the Women in ACM in UW - Madison.
- Additional Secretary of the ECE association - image processing workshops to promote student skills.
- Vice President of SEDS (Students for Exploration and Development of Space) NIT, Warangal which is a college chapter of the international organization with NASA as its student advisor.
- Sub Core member of Technozion, 2010 which takes care of the overall conduction of the technical fest's events' conduction.
- Built Gliders, CanSat (satellite in a can) and radio in an inter collegiate technical fest organized by NITW.
- Summited three mountains: Mt Pangarchuliya(17,105 ft), Mt Bhanoti(18,515 ft) and Mt Shitidhar(16,214 ft) in The Himalayas.

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.
- Automatic gain control effects of the camera were also removed for lesser noise which 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, Reconcilliation of System" project which was to discover network devices.
- It involved the reduction of the gap between M6 (MetaSolv Solution is a next-generation inventory and order management platform that over complex networks) and A5 which is the activation part of actual network.

ACADEMIC PROJECTS & RESEARCH

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 neural networks were trained initially by the results obtained from FEKO software.

TRACKING A MOBILE ADHOC NODE IN THE MIXED NETWORK

July 2011 – November 2011 | Warangal, India

- The project simulated a mixed network with four wifi nodes and ten csma nodes using ns3.
- The wifi nodes were mobile and had randomized movement. Course change trace was used to map the motion.
- Plotted the probability of Beacon Reception from the Access Point.

IMPLEMENTATION OF RANK ORDER FILTER TO IMPROVE IMAGE QUALITY

December 2010 – April 2011 | Warangal, India

- Implemented Rank Order Filter to remove specks while preserving the edges on Cyclone FPGA.
- To optimize memory image was first converted to a bit stream that was fed in SDRAM FIFO.
- Adapted the bit serial approach by pipelining and parallel computing that helped reduce the total CPU time.

DIGITAL RESPIRATION RATE METER

December 2010 – April 2011 | Warangal, India

- Designed a circuit that counted the number of inhaling and exhaling cycles in one minute using pulse generator sensing circuit.
- The system used a displacement transducer for sensing the respiration rate using IR transmitter and receiver.