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
- Operating Systems
- Algorithm Design

UNDERGRADUATE
- Signal Transformations
- Network Analysis
- Data Structures
- Probability Theory and Stocastic Processes
- Communication Theory
- Computer Networks
- Microprocessor Systems
- Cellular and Mobile Communications
- Object Oriented Programming

QUALCOMM
- ARMv8 Architecture and Design

PROJECTS
- Machine Learning to identify Habitable Exoplanets
- Multi-threaded Web Server
- Kernel thread support for xv6 OS
- Simple Shell
- MLFQ Scheduler for xv6 OS

EDUCATION

UNIVERSITY OF WISCONSIN - MADISON
MS Computer Science
August 2015 - Till date | Madison, Wisconsin
- Working on implementing a Bluetooth systems module on Raspberry Pi 2 with snappy ubunutu for the startup 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
Cum. GPA 7.85/10
- 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
- Involved in design and development of firmware and Linux device drivers for Qualcomm's wireless chipsets.
- Primary functional area of work involved developing 802.11r Scanning and implementation of Android's Preferred Network Offload support in firmware with Privacy feature in Lollipop which is the latest Android version and has been pushed in millions of chipsets.
- Worked on various memory optimizations and power save mechanisms that enabled faster connectivity. This led to a lesser die size and longer battery life with prolonged connectivity.
- 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 triaging.
- Developed insight in the new wireless protocols like WFA's - WPS, P2P, WMM, NaN and IEEE 802.11ac/p/ah that influence the device to device communication.
- 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 Internee
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

- [2009] 2nd in Litmux, Lantern and Mock Press which tests oratory, language and communication skills.
- [2006] Awarded National Scholarship by the Governor of West Bengal for Exceptional performance in class X CBSE Board Examinations.
- [2003] Placed 3rd in shai (sparring) in the International South Asian Goju Ryu Karate Championship.

ACTIVITIES

- 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 an internationally funded project 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 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

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.
- The predictions obtained from the neural networks were tested by designing and analyzing the antennas.

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 moved in a predefined area. The mobility model predefined a course change trace source which was used to simulate the trace events. Various tools were used to analyze the trace files while plotting probability of Beacon Reception.

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 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 and that helped reduce the total CPU time considerably.

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.
- The system used a displacement transducer for sensing the respiration rate using IR transmitter and receiver.
- This movement is sensed with the help of IR transmitter-receiver assembly of the sensing circuit and was converted into pulses through pulse generator.
- The respiration rate was displayed on a 3-digit display through the 7-segment decoder/driver.