Chaitanya R. Patchava

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EDUCATION

Stanford University — **September 2013-Present**
Masters in Computer Science

University of Illinois at Urbana-Champaign — **August 2009 - 2013**
Bachelor of Science in Computer Engineering

COURSES – Towards Masters

Machine Learning

WORK EXPERIENCE

Cisco Systems — San Jose, CA
ASIC Hardware Design — Aug 2013 - Present

- Designed a System Verilog Test Bench for the Access Control Protocol block
- Wrote drivers in C++ to access TCAM of AC block and placed permission information for various Internet Protocols
- Wrote software APIs in C and C++ to integrate with RTL and C++ model to compare real time data from hardware emulation to software model
- Created a web GUI utilizing bootstrap (HTML, CSS, JS) for display framework along with Morris JS(XML, JS) Graphs with a LAMP setup as the backend to display passing and failing tests
- Managed a team of ten people to demonstrate progress in their verification environments

Tivo Inc — Alviso, CA
Software Driver — May 2011 – Jan. 2012

- Designed drivers in C to take temperature measurements as input variables of hardware unit
- Manipulated a GPIO chip in order to interface with the fan unit
- Utilized input temperature readings to dictate whether to increment or decrement speed of fan

SIDE PROJECTS

Currently working on:

Designing a home automation system — *Programmed in C*

- Utilized Cypress PLC chip as means of communication along with XBEE WiFi modules
- Used a Raspberry pi as the central hub which did compute and sent commands to slaves
- Slaves were Atmega328 chips which I powered with DC converter and sent signals to TRIAC
- Would track how long devices were on in order to determine rough estimate of power consumption

Operating System Design — *Programmed in C*

- Writing a kernel from scratch, included the capability to run multiple programs and different shells simultaneous
- Currently setup IDT/GDT in order to take user input and do simple system calls, with scrolling buffer
- Next steps to write a scheduler in order to most effectively process tasks
- Created an ISO of operating system and utilized QEMU as a testing platform to run "Chaitanya-OS"
- Motivation for writing an Operating system is not only to brush up on C programming, but also want to write a lighter OS for my home automation system with built in system and kernel leve

Past:

Designed a naïve bayes classifier for safest path — *Programmed in Perl*

- Wrote a spider to crawl onto local sheriffs street crime reports (in python)
- Took that data and then analyzed using a naïve bayes classifier to determine the safest path(Perl, Mathematica)
- Used google maps APIs to give step by step directions for users.

Design of a Pipelined Microcontroller — *Programmed in VHDL*

- Designed a full microcontroller, was a fully capable five stage pipeline processor
- Created an L1 and an L2 eight way set associative cache with a true LRU

RFID-tag music player — *Programmed in C/Bash*

- Used an RIFD reader connected to an Arduino in order to ping for tag values within range
- Programmed the Arduino to respond to a tag by sending tag value to computer through serial port
- Interpreted the incoming RFID tag values as names of playlists utilizing BASH to make the system calls

SKILLS

Programming: C, C++, Verilog, System Verilog, HTML, Perl, Python,x86, Assembly, Bash
Familiar with: SQL, Java Script, CSS.
Hardware: Arduino, Raspberry Pi, Oscilloscopes, Logic Analyzer, Function Generator, Multimeter.
Software: Verdi, Debussy, RT, Design Compiler.