

# Pratheepa Santhiranayagam

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## Summary:

- Familiarity with loading FPGA code to Xilinx processor while re-flashing the units with firmware.
- Good experience on LINUX platform as it was used to ensure the Xilinx processor and antennas were syncing and working well.
- Experience in working with spectrum analyzer to determine frequencies of the packet data sent and received in access points as they are connected to tags using the Time Division Multiple Access (TDMA) or Frequency Modulation (FM).
- Learned the architecture of Intel 8088/8086 microprocessor with enhanced assembly language.
- Experienced coding in MATLAB to create music, to process bio signals by convolution, spectral analysis or filters.
- Expert in analog designing and circuits to build machines to measure any bio signals from the body such as EEG, ECG, EMG, photo-plethysmograph using operational amplifiers, sensors and other electrical components.
- Good knowledge about power electronic circuits, switch-mode regulators, and DC-DC/AC-DC converters.
- Excellent team player with great ideas and systematic approach to solve any problems.

## Education:

*San Jose State University, California*

**BSEE:** Focused on Digital and Analog design (August '07-Dec '11)

**Major GPA:** 3.78/4.00 **Cumulative GPA:** 3.65/4.00

## Relevant Work Experience:

- **College of Engineering, SJSU:** Research Assistant - (June 2011 - Present)
  - ✓ Designed Bio Engineering Applications laboratory utilizing EEG, ECG, EMG, EOG and Matlab knowledge.
  - ✓ Assisted students in building circuits to simulate the detection of blood glucose monitors. Used LM386 to create a negative reference voltage required for the test strip electrode and then amplified the analog signal to be measured accurately by an oscilloscope.
- **Altierre Corp:** Test Engineering Intern – (June – August 2011)
  - ✓ Altierre develops RFID based intelligence tags to be incorporated in materials in department stores and warehouses.
  - ✓ Used spectrum analyzer to measure the operational frequency of access points.
  - ✓ Calculated the efficiency of access points by analyzing the received and transmitted packets.
  - ✓ Tested the device for operation over wide temperature range in a temperature controlled oven.

## Projects:

- **Optimal Ultrasound Pulse Parameters for Drug Delivery:**
  - ✓ Design a scheme to deliver and track acoustically sensitive drug microcapsules using ultrasound with image guided techniques.
  - ✓ Determine pulse sequence to break the microcapsules membrane to deliver the drugs to cancer tumors.
- **Build an I/O handshaking circuit with Standard Parallel Ports:**
  - ✓ Researched and used DB 25 parallel cable to interface between 8088 processor and the I/O handshaking circuitry.
  - ✓ Designed circuitry to display the decimal output on 7 segment LED's using decoders and flip flops.
  - ✓ Developed software in assembly language to accept the binary input from DIP switches; lookup the corresponding input in the stored memory table; and output the corresponding decimal equivalent on 7 segment LED's.
- **Graphic Equalizer using MATLAB**
  - ✓ Utilized knowledge of convolution and Fourier transformation to develop the algorithm for equalizer and signal processing.
  - ✓ Used MATLAB to recognize the song and equalize the tone to control and adjust the frequency response of the sound system.

## Technical Skills:

- Programming: C++, Assembly language, MATLAB, Verilog
- Equipment and software: Cathode Ray Oscilloscope, Spectrum Analyzer, Power meter, Digital Multi-Meters, Amplifiers, Curve tracers, PSPICE, LTSPICE

## Awards/Honors:

- **Scholarship winner**, Applied Materials (2010-2011)
- **Dean's scholar**, SJSU (2008-2009)
- **Treasurer** of IEEE San Jose State Chapter
- **Author** of Acoustic interrogation and optical visualization of ultrasound contrast agents within microcapsule, IEEE, EMBC 2012