

# Venkat Raman Senapati

[vsenapat@andrew.cmu.edu](mailto:vsenapat@andrew.cmu.edu)

<http://www.ece.cmu.edu/~vsenapat/>

<http://www.andrew.cmu.edu/user/vsenapat/index.html>

5854 Forbes Avenue, Apartment #9, Pittsburgh, 15217, PA (412) 980-8535

Research Assistant – Spring2011, Teaching Assistant- Fall 2011

## Objective:

An electrical & computer engineering **full-time** position (from **December 2011**) involving **systems/embedded software** design, research & development, debugging, validation or other related work.

## Education:

Carnegie Mellon University, Pittsburgh, PA

Current GPA – 3.81/4 GPA 4.0/4.0 in Spring 2011

Master of Science, Electrical & Computer Engineering, Expected Dec 2011

## Selected Coursework:

Web Application Development

Real time embedded systems

Fundamentals of Embedded Systems

Advanced Mobile Robot Development

Image, Video & multimedia

Distributed Systems (Labs)

Machine Learning

Research Project

Algorithms & Data Structures

Computer Vision

Advanced Mobile Robot Development

Introduction to HCI methods

National Institute of Technology, Warangal, India, Bachelor of Technology, EE, 2008: GPA: 8.76/10

## Technical Work Experience:

Summer Intern, Machine Learning Dept., NEC Laboratories, Princeton May 12th 2011: August 26th 2011

- Created a context aware computing model using **Android phones**, **Java based** framework, ActiveMQ messaging system, Android applications & machine learning algorithms using Lua-based Torch software package.

Design Engineer for OMAP4 multimedia processor, Texas Instruments, India July 7th 2008: June 29th 2010

--Designed and implemented the software framework, wrote manuals and achieved challenging performance targets for the **advanced imaging algorithms** & validated them on **various platforms** and hardware boards.

- Developed **device drivers** & chip set libraries for sub modules of the imaging sub system & peripheral devices.

- Implemented **multimedia frameworks** like OpenMax for **video codecs** like H264, VP6 decoders.

- Involved with **multi-core software development**, **real time OS**, **debuggers**, **code profiling**, **code coverage**, **unit testing**, **software configuration management**, **CRM tools** & **Eclipse based simulators**.

## Recent Academic Projects:

1. Developed simple system calls for **Linux kernel of Android based** Motorola Droid phone.

2. Implemented **system calls** to specify the budget for various applications & profiled them using system calls & hr timers.

3. Implemented dynamic power management schemes for the Motorola Droid phone & developed an **Android application**.

4. Implemented drivers, interrupt handler, SWI handler, scheduler, etc & built a mini real time OS kernel for Intel gumstix board.

5. Implemented a user interface prototype for an exercise machine in the **human computer interaction course**.

6. Developed infrastructure for message passing, clock ordering, and reliable multicasting & mutual exclusion for multiple nodes of a distributed system.

7. Design & implemented the perception algorithms for the **Google X prize** lunar mission challenge.

8. Ergo buddy project - Worked on a tool that supports the training of **activity recognition systems** using machine learning algorithms for context aware computing.

9. Developed programs for **machine learning algos** like decision trees, PAC theory, neural networks, concept learning, Naïve Bayes, Hidden markov model, instance based learning etc.

10. Created 2D-3D image conversion & implemented steganography, edge & feature extraction for images, vehicle detection with AdaBoost algorithm, contour tracking with snake algo, PCA to recognize faces, SIFT matching using Matlab & Simulink & **Emotion Recognition using Kinect**.

**Skills:** Programming in **C**, **C++**, **JAVA**, Assembly, Lua, JavaScript, HTML, XHTML, CSS, **MATLAB**, Simulink

## Publication Summary:

1. "Genetic Algorithm based Image restoration using a new constrained deconvolution method" ICEDSP, Manipal University, Manipal, December 2009

## Undergraduate Research Experience:

1. Power flow solution with FACTS devices.

2. Controlling output voltage for an induction generator & Electrical machine modeling and analysis for DC, AC machines

## Undergraduate Training & Internships:

*Vocational training & internship*, May 2006 – June 2006, National Aluminum Company, Koraput Orissa, India

*Volunteer Work* - June 2007 – July 2007, Institute of Embedded Technology, Hyderabad, India

## Honors:

• Awarded **merit scholarship** in Bachelor of Technology & Awarded in Essay Writing, Technical Quiz, and Design competitions.

## Extra-Curricular & Leadership Experience:

• Was selected as Joint Secretary of the **IEEE** Student Branch.