South Bay Area, CA (408)420-6299 http://vnataraj.github.io

**OBJECTIVE** 

Senior in Computer Science looking for full time or internship opportunities.

**EDUCATION** 

Bachelor of Science, Computer Science Purdue University, West Lafayette, IN

December 2014

COMPUTER SKILLS

Languages & Software: Java, C, C++, Git, Python, HTML, PHP, MySQL, x86-64 Assembly,

MIPS, Objective-C, ANTLR, Node.js, JavaScript, Ruby, Ruby on Rails, R

Platforms: Windows, Unix, MacOS, Android, iOS, Pebble

Other Skills: Network Design

WORK EXPERIENCE

Research Assistant

September 2014 - December 2014

Computer Science Department, Purdue University

Worked under Professor Antony Hosking on MicroVM.

- Contributed towards a method to allow all threads created by the executing program on the VM to be user-level.
- Project also aimed to allow access to Futex primitives across VM in user space despite multiple context switches.

Research Assistant

May 2013 - October 2013

Computer Science Department, Purdue University

- Implemented the Boids Algorithm in Standard ML as a contribution to the MLton project
- Wrote a version for Multi-MLton that supports multithreading

Applications Engineering Intern

May 2012 - Aug 2012

Broadcom Corporation, Santa Clara, CA

- Wrote debugging, testing, and developing tools in Python to fulfill a range of applications including redundant evaluation board power cycling and error log parsing.
- Debugged and wrote a patch preventing a XAUI MDIO-related problem.
- Assisted in benchmarking operations under various board conditions and silicon conductor types.

#### **PROJECTS**

## Paybble

- Developed a Pebble application with an iOS companion app and web-based front end that lets people pay each other using only their Pebble.
- Worked on Node.js server to seperately parse information sent by both iOS and web sources, combining MongoDB, Twilio, and Venmo API's.
- Won prize from Paypal at Boilermake for best use of the Venmo API.

Jot

- Co-developed a platform for people to crowd-source authoring of books for MHacks.
- Built site using a combination of HTML, CSS, Javascript, Firebase, and Parse.
- Won prize from Firebase for best use of their API

## Java

- Wrote a functional MiniJava compiler using Java and ANTLR that assembled into MIPS
- Broken down into Lexer, Parser Generator, SSA Generator, Type Checker, Register Allocator, and Code Generator.

# C, C++

- Implemented an IP fragmenter in XINU that supports fragmentation despite variable MTU values
- Implemented parts of an operating system (XINU) including process message passing, process scheduler and a filesystem.

#### Senior Design

- Led software development and designed logic for an autonomous robotic fish
- Optimized software on controller to lower response time, allowing for the use of a lower power microcontroller without a need for multithreading.
- Features implemented on fish include obstacle avoidance and ability to control instability in roll, pitch, and yaw.