Sathyam Mohanram Vellal

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Seeking Software Development Internship opportunities for Summer 2017

Education

University of Southern California, Los Angeles, CA — August 2016 - May 2018 (expected)
Master of Science (M.S.), Computer Science (High Performance Computing and Simulations)

PES University, Bangalore, India — August 2010 - June 2014
Bachelor of Engineering (B.E.), Computer Science & Engineering — GPA: 8.85 / 10

Technical Skills

Programming

- **Proficient In** C/C++, Java, Python, JavaScript
- **Familiar With** MySQL, HTML/CSS, ES6, PHP, Android, iOS

Other Technologies

- **Proficient In** Shell, Linux, Git, LaTeX
- **Familiar With** OpenMP, MPI, Boost C++, MongoDB, Node.js, Django, React-Native, SVN

Work Experience

PayPal Inc., Bangalore, India
Software Engineer — June 2014 - July 2016
Tags: C++, Java, JavaScript, Node.js, Android, iOS, React-Native

- Analyzed and worked towards tapering false positives in detection of fraudulent transactions, directly impacting annual revenue, and brought in customer insights which were used to refine and enhance fraud detection models.
- Design, implementation and support of the Free Return Shipping web flows, both activation and product experiences.
- Design and implementation of a multi-faceted Mobile Wallet solution for the Telcel Pay and Claro Pay white-label apps.
- Also involved in realization of product design, enhancements and support to other products, technical support during events.

Software Engineer Intern — Jan 2014 - June 2014
Tags: JavaScript, Node.js

- Analysis and research of the existing (at the time) Payouts Experience (known as MassPay).
- Prototyped and contributed to the Next-Gen Payouts Experience with enhanced UX and modern webtools on the Node.js stack.

Boost C++ Libraries, (done remotely)
Contract Developer, Google Summer of Code — June 2013 - Aug 2013
Tags: C++, OpenMP, Parallel Programming, Vectorization

- Developed a new aligned memory allocator and modified core functionality of the library to enable auto-vectorization.
- Implemented efficient BLAS routines, like GotoBLAS Matrix-Matrix multiplication and more, to boost library's performance.
- With benchmarks using standard algorithms, captured the increase in library's performance from my contributions.

Student Nokia Developer, PES University, Bangalore, India
Application Developer — June 2011 - Aug 2011
Tags: Qt platform, Java, JavaScript, Game Development, Artificial Intelligence

- Built a two-player and a four-player game based on the traditional Indian game of "Chowka Baara" with a robust computer gameplay for the Symbian platform. The game was among the Top 10 new releases for the month (at the time).
- Was also part of the small-scale innovation team, working on mobile apps for low-end Nokia devices (devices with keypad).

Data Structures (using C), CS Department, PES University, Bangalore, India
Teaching Assistant — Aug 2011 - Dec 2011
Tags: C, Data Structures, Shell

- Assisted the professors with preparing content, extra reading material and also with answering questions from students.
- Involved in laboratory sessions to help prepare the content and to also help fellow students resolve issues.

Selected Project Experience

Logic Inference Engine, Bangalore, India

Author November 2016

Tags: Python, First Order Logic

- Built an inference engine based on first-order logic, to take in a set of rules/sentences as input, and breakdown the rules to build a Knowledge Base, which then can be queried with sentences for the truths in that world.
- The inference engine, at first, simplifies every rule into CNF and uses the resolution by refutation algorithm.

Smart Personal Assistant, PES University, Bangalore, India

Co-Author Jan 2014 - May 2014

Tags: Android, Artificial Intelligence, Machine Learning, Natural Language Processing

- Developed a self-learning intelligent mobile assistant to assist users with common-tasks in day-to-day activities.
- The assistant detected and prioritized important SMS and Emails, by accommodating to user's schedule.
- It tracked SMS and Emails to automatically log and mark potential event information in the user's calendar.
- The assistant also featured "Smart Alarms", to find best possible time to set alarms based on the user's calendar and sleep time.

Enhancing 0 A.D. Gameplay AI, Open Source (done remotely)

Author Aug 2013 - Dec 2013

Tags: C++, JavaScript, Game Development, Artificial Intelligence

- Contributed to 0 A.D - an Open Source Historical RTS game. The contributions made, and results obtained were also submitted as the required course project for the "Architecture of Open Source Technologies" course.
- Contributed to the runtime simulation of the AI Bot for the game to improve its "thinking" abilities.
- Enhanced the AI for better military, economic and attacks decision making. Also improved opening strategies.

PyOMP, PES University, Bangalore, India

Co-Author Aug 2013 - Dec 2013

Tags: Python, OpenMP, Parallelization

- Using decorators, built a module for introducing OpenMP-like directives for Python, similar to that of C++, with the intention to provide a simpler interface for parallel programming in Python.
- Implemented $Parallel$, $Single$, $Task$, For and $Section$ directives of OpenMP, along with specifying no. of threads.
- Using benchmarks with standard algorithms, measured performance and found it to be promising at significantly large inputs.

Software Machine Simulator, PES University, Bangalore, India

Author Aug 2012 - Nov 2012

Tags: Compiler & Language Design, ASM, Python, Qt

- For academic purposes, developed a simple architecture specification, an assembly language specification for the architecture and a machine simulator to run any assembled code for the assembly language.
- The architecture featured processor registers, storage registers, flags, a small cache and memory. The assembly language specification featured over twenty operations to be able to perform general computations and operations.
- The simulator and the assembly language specifications were used as tools for teaching Compiler Design and to also help build simple high level programming languages that would compile to these specifications, for understanding language design.

Awards and Honors

Distinction Awards, PES University, Bangalore India

- Obtained Distinction Awards for all semesters during undergraduate studies.

Hackathons, PayPal Inc., Bangalore India

- Winner of the Small Business Challenge, in Dec. 2015.
- Runner up of the Consumer Org Product Hackathon, in Aug. 2015
- Winner of the Global Product Hackathon, in Dec. 2014.
- Winner of the PayPal Web Design Contest, in Aug. 2014.