Sathyam Mohanram Vellal

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Seeking opportunities for Fall 2017 / Spring 2018 in Software Devopment and Computational Software Development

Education

University of Southern California, Los Angeles, CA — August 2016 - May 2018 (expected)
Master of Science (M.S.), Computer Science — Focus: High Performance Computing & Simulations
Relevant Courses: Analysis of Algorithms, Methods of Computational Physics
Scientific Computing & Visualisation, 3D Graphics & Rendering

PES University, Bangalore, India — August 2010 - June 2014
Bachelor of Engineering (B.E.), Computer Science & Engineering — Focus: Parallel Computing

Skills

- **Proficient In** C/C++, Java, Python, JavaScript, Shell, Linux, Git, LaTeX, Matlab
- **Familiar With** OpenMP, MPI, Matlab, OpenGL, MySQL, HTML/CSS, ES6, Node.js, React-Native, Android

Work Experience

PayPal Inc., Bangalore, India
Software Engineer — June 2014 - July 2016
- Analysed and worked towards tapering false positives in detection of fraudulent transactions, directly impacting annual revenue.
- 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 realisation of product design, enhancements and support to other products, technical support during events.

Software Engineer Intern — Jan 2014 - June 2014
- 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
- Developed a new aligned memory allocator and modified core functionality of the library to enable auto-vectorisation.
- 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.

Selected Projects

Distributed Map Search, Author — May 2017
- Implemented distributed A* and Overlay-method to find a route between two nodes in a large dataset.
- Optimised code for easier recognition of auto-vectorisation and auto-parallelisation of code, boosting performance.

Logic Inference Engine, Author — Nov 2016
- 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 truths in that world.
- The inference engine, at first, simplifies every rule into CNF and uses the resolution by refutation algorithm.

Smart Personal Assistant, Co-Author — May 2014
- Developed a self-learning intelligent mobile assistant to assist users with common-tasks in day-to-day activities.
- The assistant detected and prioritised important SMS and Emails, by accommodating to user's schedule.
- It 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, Co-Author — Dec 2013
- Contributed to the runtime simulation of the AI Bot for 0 A.D. game to improve its "thinking" abilities.
- Enhanced the AI for better military, economic and attacks decision making. Also improved opening strategies.

PyOMP, Co-Author — Dec 2013
- Using decorators, introduced OpenMP-like directives for Python, to provide for a simpler parallel programming interface.
- 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.