

Sathyam Mohanram Vellal

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Seeking Full-Time opportunities from May 2018

EDUCATION

University of Southern California , Los Angeles, CA	August 2016 - May 2018 (expected)
<i>Master of Science (M.S.), Computer Science</i>	Focus: Scientific Computing
Relevant Courses: Analysis of Algorithms, 3D Graphics & Rendering, Methods of Computational Physics, Scientific Computing & Visualisation	GPA: 3.38
PES University , Bangalore, India	August 2010 - June 2014
<i>Bachelor of Engineering (B.E.), Computer Science & Engineering</i>	Focus: Parallel Computing, GPA: 3.9

SKILLS

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|------------------------|---|
| • Proficient In | C/C++, Java, Python, JavaScript, Shell, Linux, Git, TeX 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 (six months as Intern)	Jan 2014 - July 2016
<ul style="list-style-type: none">Worked towards tapering false positives in detection of fraudulent transactions, directly impacting annual revenue (C++).Implementation of revamped Next-Gen Payouts Experience/PayPal MassPay (Node.js full-stack).Design, implementation and support of the Free Return Shipping activation, and product web experiences (Node.js full-stack).Design and implementation of multi-facted Mobile Wallet solutions - Telcel Pay and Claro Pay (React-Native, iOS, Android).	
BOOST C++ LIBRARIES , (done remotely)	
CONTRACT DEVELOPER, GOOGLE SUMMER OF CODE	June 2013 - Aug 2013
<ul style="list-style-type: none">Developed a new aligned memory allocator to perform word-aligned memory allocation and deallocation.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.	

SELECTED PROJECTS

AGENT-BASED SIMULATION FOR ECONOPHYSICS , Author	July 2017
<ul style="list-style-type: none">Analysed the role and usage of agent-based modelling in Economics.Applied Kinetic Theory of Gases and Molecular Dynamics to implement an agent-based, simple wealth exchange model.Also extended the model to support a kinetic wealth exchange model with savings.	
DISTRIBUTED MAP SEARCH , Author	May 2017
<ul style="list-style-type: none">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.	
PROCEDURAL MUSIC GENERATION , Co-Author	April 2017
<ul style="list-style-type: none">Used a Recurrent Neural Network to generate music for an FPS-game, in MIDI format.Modified the generated notes, based on game parameters to suit the environment and gameplay, efficiency.	
LOGIC INFERENCE ENGINE , Author	Nov 2016
<ul style="list-style-type: none">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
<ul style="list-style-type: none">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.	
PyOMP , Co-Author	Dec 2013
<ul style="list-style-type: none">Using decorators, introduced OpenMP-like directives for Python, to provide for a simpler parallel programming interface.Implemented <i>Parallel</i>, <i>Single</i>, <i>Task</i>, <i>For</i> and <i>Section</i> 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.	