Sathyam Mohanram Vellal

svellal@usc.edu • 213-421-7403 • Los Angeles, CA, 90007

linkedin.com/in/sathyamvellal • github.com/sathyamvellal • sathyam.me

Summary

Passionate, detail-oriented, hard-working, future recent-graduate and entry-level Software Engineer. Also interested in Scientific Computing. Generalist with an ability to break down complex problems and translate into modular, robust, scalable and maintainable software.

Education

University of Southern California, Los Angeles, CA — Aug 2016 - May 2018 (expected)

Master of Science (M.S.), Computer Science (High Performance Computing & Simulations) — GPA: 3.38 / 4.00

Relevant Coursework: Computational Physics, Scientific Computing & Visualization, 3D Graphics:

PES University, Bengaluru, India — Aug 2010 - Jun 2014

Bachelor of Engineering (B.E.), Computer Science & Engineering — GPA: 8.85 / 10.00

Work Experience

PayPal Inc., Bangalore, India

Software Engineer — Jan 2014 - Jul 2016

- Reduced detection of false positives in fraudulent transactions in the risk models, directly impacting annual revenue.
- Designed and developed 2nd-gen Payouts experience, in-house Free Return Shipping activation and product experiences, multi-faceted white-labeled mobile-wallet solutions (Telcel Pay and Claro Pay). Resolved and supported issues on the go.
- Awarded for being proactive, contributions, and mentoring. Was part of winning teams for multiple product hackathons

Boost C++, uBLAS Library, Remote

Contract Developer, Google Summer of Code — Jun 2013 - Aug 2013

- Developed new aligned allocator, extending `std::allocator` that is guaranteed to allocate on word-aligned memory addresses.
- Modified and restructured core parts of the library for better auto-vectorization by the compiler, and hence boost performance.
- Modified and implemented better and more efficient BLAS routines to improve the overall performance of the library.

Projects

Simulations and Econophysics — Jun 2017 - Aug 2017

- Analyzed and examined role of agent-based modelling, molecular dynamics and kinetic theory of gases in the field of Economics.
- Implemented kinetic wealth-exchange model, with and without savings, to simulate a simple economy for sizeable number of agents.

Distributed Map Search — Apr 2017 - May 2017

- Implemented distributed map searching techniques, using A* and Multi-layered Overlay Method to find optimal routes between nodes in a large dataset of Los Angeles's intersections. Designed for dynamic and changing travel-times between two nodes.

Procedural Music Generation — Jan 2017 - Apr 2017

- Developed a Recurrent Neural Network with LSTM using Tensorflow to train large classical MIDI music dataset.
- Generated music for an FPS game, and procedurally modified params (tone, tempo, etc) based on game environment in realtime.

Smart Personal Assistant — Jan 2014 - May 2014

- Developed an intelligent mobile assistant for common day-to-day personal activities, featuring Smart Alarms to automatically set alarms, and Smart Notifications to detect and prioritize user's SMS and Email, based on user's calendar, schedules and preferences.

PyOMP — Oct 2013 - Dec 2013

- Built a library to provide OpenMP like directives using decoratives for Python, to make for a simpler parallel programming interface.
- Implemented `Parallel`, `Single`, `Task`, `For`, and `Section` directives, along with config for number of threads and more.

Skills

- **Programming** — C/C++, Java, Python, JavaScript, Shell, Matlab
- **Computer Graphics** — OpenGL, CUDA, OpenCL, Rendering, Shading, GPGPU
- **Applied Computer Science** — Molecular Dynamics, Fluid-Dynamics, Generative Music, Cellular Automata, Linear Algebra
- **Others** — HTML/CSS, Node.js, React/React-Native, iOS, Android, Git, SVN, documentation tools