

Davide Spataro

Software Engineer

Personal Info



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About me

I am a curious and passionate software engineer and my interests include, but are not limited to, C++, parallel programming and GPGPU. I am an active StackOverflow user, avid reader of technical and scientific books and articles. Participating in competitive programming competitions, writing blog articles on C++ and algorithms and doing online lesson, is how I keep challenging myself daily. I feel naturally inclined to work in a team, but I am also capable of tackling and solving complex problems autonomously. In addition, I am always looking for people and experiences from which I can learn and improve. I was born and raised in Nicotera, Southern Italy. At the age of 12 I started programming and I have studied piano and music for 10 years, long enough to make me addicted to classical and jazz music, until the age of 18 when I decided to concentrate fully on Computer Science. Besides that, I am passionate about photography and investing. When I am not coding I am most likely either paddling in the Mediterranean sea, lifting weights in the gym or fighting gravity on a race bike. I drink a lot of coffee ☕.

Languages

Italian

English

Dutch

(*)[Skill scale: 0 (Awareness) to 10 (Expert).]

Key skills

Fundamentals

C/C++11 and newer

Build and Version Control

Concurrency

OS and Scripting

Algorithms and data structures, TDD, OOP, Design Patterns, SQL
Meta-programming, standard, boost, google test/mock libraries

git, GNU make, CMake

Threading, CUDA, OpenCL, MPI, OpenMP, OpenACC

Linux, Bash, Windows, Python (prior experience)

Experience

since 2020 Senior Software Engineer

DEGIRO, The Netherlands

- C++ Trading core software.
- Distributed/Parallel system design

since 2018 Software Design Engineer

ASML, The Netherlands

- Implemented C/C++11 core software for overlay optimization.
- Benchmarking of metrology code aimed at improving speed of execution.
- Adopted TDD and piloting CI transition (Jenkins).
- Increased UT coverage for legacy C/C++ code.

2017 Ph.D. Research Visiting Student

University of Warwick, United Kingdom

- Investigation on the design of an efficient solve for tridiagonal systems within OPS
- Optimization using Intel SIMD intrinsics (SSE)

2016 Ph.D. Research Visiting Student

University of Edinburgh, Scotland

- Investigated parallel and distributed visualization strategies for exascale simulations as part of the VELA project.
- Prototype implementation for multi-GPU rendering using C++14.

2014-2017 Ph.D. Teaching Assistant

University of Calabria, Italy

- Teaching assistant for the course of *UI and event programming* for \approx 100 attendees.
- The students were, eventually, able to program a full fledged 3D videogame in Java.

Education

2014-2018 Ph.D. in Mathematics and Computer Science

University of Calabria, Italy

Seamless acceleration of numerical regular grid methods on many-core systems.

- Designed a DSL aimed at both efficient and quick implementation of CA and FDM on multi-core/nodes/accelerators systems.
- Implemented a family of C/C++/OpenCL/MPI libraries

2011-2014 M.Sc. magna cum laude in Computer Science

University of Calabria, Italy

Accelerating the new SCIARA-fv3 numerical model by different GPGPU strategies.

- Investigated GPGPU parallelization for a computationally heavy fluid-dynamic model.
- Achieved speedups up to 200x enabling it for risk map generation.
- Implemented a 3D OpenGL interactive UI

2008-2011 B.Sc. in Computer Science

University of Calabria, Italy

B-finder a system for automatic detection of buildings from aerophotogrammetries.

- Designed an active contour model like algorithm for accurate buildings segmentation from aerial and satellite images.
- Matlab prototype implementation used to identify non-authorized constructions.

Publications*

2018 A first multi-GPU/multi-node implementation of the open computing abstraction layer
Journal of Computational Science, Volume 32, March 2019, Pages 115-124

2018 The Open Computing Abstraction Layer for Parallel Complex Systems Modeling on Many-Core Systems
Journal of Parallel and Distributed Computing, Volume 121, 53-70,

2016 Multi-Agent System with Multiple Group Modelling for Bird Flocking on GPU
Proceedings of The 2016 International Conference on Parallel, distributed and Network-Based Processing (PDP), February 17-19 2016, Crete, Greece

2015 Efficient Lava Flows Simulations with OpenCL: A preliminary application for Civil Defence Purposes
Proceedings of The 10th International Conference on P2P, Parallel, Grid, Cloud and Internet Computing, November 4-6, 2015, Krakow, Poland

*Full list on www.davidespataro.it