europass

Saverio Pasqualoni

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ABOUT ME

I am a computer science student with a strong passion for **High-Performance Computing** (HPC) and solving computational challenges at scale. With expertise in programming languages like **C**, **Python**, and **Java**, I enjoy leveraging parallel computing techniques and tools such as **MPI**, **OpenMP**, and **CUDA** to push the boundaries of performance and efficiency. My academic and practical experience in **AI**, **machine learning**, and **optimization** allows me to approach problems with both creativity and precision. Driven by curiosity and a love for innovation, I am committed to contributing to impactful projects in computing and beyond.

EDUCATION AND TRAINING

SEP 2021 – DEC 2024 Rome, Italy

BSC IN APPLIED COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE Sapienza University of Rome

During my bachelor's degree, I gained a strong foundation in programming, artificial intelligence, parallel computing, networking, and mathematics through comprehensive coursework and practical projects. This experience allowed me to develop both theoretical expertise and hands-on skills, enabling me to solve complex problems and create efficient, innovative solutions.

- **Programming**: Proficient in C, Python, Java; functional and imperative programming.
- **AI & ML**: Expertise in AI, ML, deep learning, and computer vision.
- **Parallel Computing**: Experience with MPI, OpenMP, CUDA, and optimization.
- **Networking & Cybersecurity**: Strong knowledge of networks and security practices.
- **Data & Math**: Skilled in data analysis; strong foundation in calculus, linear algebra, and optimization.

Website https://www.uniroma1.it/ | **Field of study** Computer Science | **Final grade** 106/110 | **Level in EQF** EQF level 6 |

Type of credits ECTS | **Number of credits** 120 | **Thesis** Swing Allreduce Implementation on Open MPI

SEP 2018 – AUG 2021 Rome, Italy

BSC IN MATHEMATICS (NOT COMPLETED) Sapienza University of Rome

Although not completed the Bachelor Degree, this part of my academic journey provided me with significant mathematical expertise. Through coursework in calculus, analysis, linear algebra, abstract algebra and probability, I developed a strong foundation in mathematical concepts critical for problem-solving and algorithm design. These skills have been instrumental in all my future studies and occupations.

Website https://www.uniroma1.it/

2014 – 2018 Subiaco, Italy

SCIENTIFIC HIGH SCHOOL DIPLOMA Liceo Scientifico Braschi-Quarenghi

Website https://www.iisbraschiquarenghi.edu.it/ | **Final grade** 98/100 | **Level in EQF** EQF level 4

WORK EXPERIENCE

APR 2024 – DEC 2024 Rome, Italy

RESEARCH INTERNSHIP - IMPLEMENTATION OF SWING ALLREDUCE ON OPEN MPI SAPIENZA

Programming

- Hands-on experience with C for HPC development, along with debugging and profiling tools for large-scale codebases.
- Bash and Python programming for testing and analyzing results
- Proficiency in implementing and optimizing algorithms within the Open MPI library.

High-Performance Computing

- Experience working with state-of-the-art HPC systems as Leonardo and Snellius
- In-depth understanding of the design and performance tuning of distributed computing systems

Other

- Codebase Management: navigated and contributed to large-scale software projects (Open MPI: 1.2M LOC, 7,000+ files).
- Conducted rigorous testing and performance analysis of algorithms across various hardware setups.

2018 – 2024 Rome, Italy

HIGH SCHOOL STUDENT'S TUTOR FREELANCER

Offered tutoring sessions in mathematics, physics, and computer science where I helped students prepare for exams and improve academic performance by giving one-to-one lessons to address individual student needs.

CONFERENCES AND SEMINARS

28 OCT 2024 – 31 OCT 2024 Bologna, Italy

EPICURE GPU Hackaton

Participated in the EPICURE GPU Hackathon at CINECA, Bologna, focusing on GPU programming. Engaged in expert-led lectures, hands-on practice sessions, and a 'Bring Your Own Code' segment, optimizing personal code with guidance from GPU programming specialists. Gained experience working on state-of-the-art NVIDIA GPUs in the Leonardo Booster cluster.

Link https://epicure-hpc.eu/2024/09/19/nvidia-gpu-hackathon/

17 JUL 2024 – 21 JUL 2024 Trento, Italy

2nd CINI Summer School on High Performance Computing and Emerging Technologies

Attended an intensive summer school on High-Performance Computing (HPC), focusing on both basic and advanced HPC technologies. Gained expertise in scalable parallel algorithms, programming models (OpenMP, GPU programming, MPI), and integration of machine learning in HPC. The program emphasized energy efficiency, reliability, and data-centric workload acceleration, with practical sessions and a mentoring initiative to support academic and professional growth.

Link https://hpc-summer-school-24.disi.unitn.it/

VOLUNTEERING

2019 – 2024 Subiaco, Italy

Scout Leader

As a Scout Leader, I have honed my leadership, organizational, and mentoring skills by planning and executing engaging activities and events for youth. I have fostered teamwork, resilience, and problem-solving in diverse group settings while ensuring safety and inclusivity. This role has enhanced my ability to communicate effectively, manage challenges, and inspire young individuals to achieve their potential.

DIGITAL SKILLS

Programming Languages

C | C++ | Python | Bash | Java | Haskell | SQL | LaTeX | R | MATLAB

Tools

Linux | Git | Vim, NeoVim | Docker | score-p | Jupiter Notebook | Ansible | NVIDIA Nsight | TMUX

Framework and Libraries

MPI | CUDA | Open MP | Open ACC | Open CL | SLURM Job Scheduler | PyTest | Numpy | Pandas | PyTorch | Python visualization libraries (Matplotlib & Seaborn) | Google CoLab | ValGrind

LANGUAGE SKILLS

Mother tongue(s): **ITALIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
ENGLISH	C1	C1	C1	C1	C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user