Lorenzo Vecchietti

lorenzo.vecchietti.1997@gmail.com | github.com/lorenzovecchietti | Milan, IT

Skills

Programming: Python *(Pandas, NumPy, PyTorch, PyAnsys, FEniCSx)*, C++, SQL, Bash, Git/GitHub
Simulation & CAE: Abaqus, OpenFOAM, Paraview, Ansys Fluent, Ansys Icepak, Ansys Mechanical
Core Competencies: CFD, FEA, Thermal Management, Numerical Optimization, Machine Learning for Physics (SimAI)

Honors & Awards

Ansys LLM Hackathon, *1st Place* – Built an automated video suggestion engine via internal docs & YouTube. 2024
Ansys Best Application Engineer, Quarterly award recognizing top performance across the EMEA region. 2024
Ansys Hackathon, *2nd Place* – Developed an AI-driven automatic post-processing tool. 2023
Alta Scuola Politecnica Scholarship, Awarded to top 1% of M.S. students across PoliMi and PoliTo. 2020
Best Freshmen Award, Recognition for top-ranking first-year students at Politecnico di Milano. 2017

Experience

Senior Application Engineer, Ansys – Milan, IT Jan. 2026 – Present
Application Engineer II, Ansys – Milan, IT Feb. 2024 – Jan. 2026
Application Engineer, Ansys – Milan, IT Sept. 2022 – Feb. 2024

- **PyAEDT Core Contributor:** Expanded open-source Icepak coverage from ∼30% to ∼**95%**, enabling advanced automation for enterprise clients.
- **HPC & UX Design:** Developed a custom LAPACK solution achieving a **10x speedup**; managed UX to directly influence a multi-million euro deal. Secured account renewal for a top-3 EMEA client by salvaging a critical project via custom Python automation.
- **AI Innovation:** Spearheading SimAI application engineering for electro-thermal management, integrating Deep Learning with physics simulation.

FEA Engineer, Pirelli – Milan, IT Feb. 2022 – Aug. 2022

- **Advanced Simulation:** Conducted complex tire behavior analysis for F1, Rally, and GT championships, directly impacting performance strategies.
- **Process Automation:** Architected Python scripts to automate pre-processing, reducing manual data entry time by **3x** and eliminating human error.
- **Infrastructure Optimization:** Diagnosed and resolved longstanding HPC queuing logic bottlenecks, increasing cluster throughput.
- **R&D Implementation:** Successfully validated and field-tested a custom proprietary mesher for production workflows.

Education

Alta Scuola Politecnica – Milan/Turin, IT 2019 – 2021
Elite double-degree program for top 1% of students focusing on multidisciplinary innovation models.
Politecnico di Milano – M.S. in Aeronautical Engineering 2021
Grade: 110/110 with Honors. Specialization: Turbulence, Numerical Methods, Optimization.
Politecnico di Milano – B.S. in Aerospace Engineering 2019
Grade: 110/110 with Honors.

Key Projects

STLIMB (Master Thesis) GitHub Code

- Developed a high-performance CFD solver based on the Immersed Boundary Method.
- **Impact:** Outperformed standard OpenFOAM implementations with a **25x speedup** and **70% reduction** in memory usage.

Extracurricular Activities

Aerodynamic & CFD Engineer, Dynamis PRC (Formula Student) 2017 – 2020

- Implemented advanced CFD techniques (SAS, Moving Mesh, Porous Media), contributing to multiple wins in FSAE Design Challenges.
- Standardized team simulation workflows, enabling cloud-based collaboration and securing sponsorships with SimScale and Lenovo.