

# LUCA PEGOLOTTI

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## SUMMARY

- ◆ Highly skilled researcher with expertise in Machine Learning, Computational Science, and Mathematical Simulation of the Cardiovascular System; contributed to 10+ papers published in highly regarded journals.
- ◆ Experience in developing machine learning algorithms for biomedical applications using multimodal data.
- ◆ Took part in the [Generative AI Intensive Course with Google 2025](#) and got proficient in the latest Gemini API tools and practices such as grounding, RAG, agents, and LLM prompt engineering.
- ◆ Proficient in C, C++, Python, and MATLAB, with experience teaching C++ programming and high-performance computing (MPI, CUDA) during PhD.

## EXPERIENCE

- ◆ **Postdoctoral researcher at Apple Health AI, Zürich (CH)** November 2023 - March 2025
  - Developed algorithms combining physics and machine learning for sensor data
  - Worked both on fundamental and product-oriented research
- ◆ **Postdoctoral researcher at Stanford University, Stanford (USA)** August 2021 - October 2023
  - Developed 1D reduced order models—a modified version of Deepmind’s MeshGraphNet—for cardiovascular simulations using graph neural networks, which led to collaboration with the [NVIDIA Modulus team](#)
  - Created and led development of the Vascular Model Repository website ([www.vascularmodel.com](http://www.vascularmodel.com))
- ◆ **Postdoctoral researcher at EPFL, Lausanne (CH)** January 2021 - June 2021
  - Finalized C++ code developed during PhD for reduction techniques in PDEs
- ◆ **Software Engineering Intern at Siemens AG, München (DE)** February 2016 - August 2016
  - Implemented concurrent data structures and algorithms for the EMB<sup>2</sup> C++ library for parallel computations

## EDUCATION

- ◆ **PhD in Applied Mathematics** March 2017 - December 2020  
EPFL, École Polytechnique Fédérale de Lausanne, Lausanne (CH)
- ◆ **Ignite Program, Stanford Graduate School of Business** January 2023 - March 2023  
Stanford University, Stanford (USA)
- ◆ **Visiting Researcher** January 2020 - April 2020  
Stanford University, Stanford (USA)
- ◆ **M.Sc. in Computational Science and Engineering** September 2014 - January 2017  
EPFL, Lausanne (CH)
- ◆ **B.Sc. in Mathematical Engineering** September 2011 - September 2014  
Politecnico di Milano, Milano (IT)

## SELECT PUBLICATIONS

- ◆ **Luca Pegolotti**, Martin R. Pfaller, Natalia Rubio, et al. “Learning Reduced-Order Models for cardiovascular simulations with Graph Neural Networks.” *Computers in Biology and Medicine* 168 (2024): 107676
- ◆ **Luca Pegolotti**, Martin Pfaller, Alison L. Marsden, and Simone Deparis. “Model order reduction of flow based on a modular geometrical approximation of blood vessels.” *Computer Methods in Applied Mechanics and Engineering* 380 (2021): 113762
- ◆ Niccolò Dal Santo, Simone Deparis, and **Luca Pegolotti**. “Data driven approximation of parametrized PDEs by Reduced Basis and Neural Networks”. *Journal of Computational Physics* (2020): 109550
- ◆ **Luca Pegolotti**, Luca Dede, and Alfio Quarteroni. “Isogeometric Analysis of the electrophysiology in the human heart: Numerical simulation of the bidomain equations on the atria.” *Computer Methods in Applied Mechanics and Engineering* 343 (2019): 52-73

## SKILLS

**Programming:** C, C++, Python, MATLAB, proficient in ML frameworks (PyTorch, Tensorflow, scikit)  
**Software:** Familiar with software engineering best practices and tools (e.g, Git and continuous integration)  
**Soft skills:** Technical communication, teaching & mentoring, fast learner  
**Languages:** Italian (native), English (C2/C1), French (B2), Mandarin (Basic)