LUCA PEGOLOTTI

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SUMMARY

- Highly skilled researcher with expertise in Machine Learning, Computational Science, and Mathematical Modeling of the Cardiovascular System; contributed to 10+ papers published in highly regarded journals
- Currently working at Apple Health AI in Zürich, developing advanced algorithms and deep learning techniques for complex biomedical applications
- Experienced in classical and modern machine learning techniques
- 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 - Present
  - → Developing algorithms combining physics and machine learning for sensor data
  - → Working both on fundamental and product-oriented research
- **Postdoctoral researcher at Stanford University, Stanford (USA)** August 2021 - October 2023
  - → Developed 1D reduced order models for cardiovascular simulations using deep learning (graph neural networks)
  - → Led development of the Vascular Model Repository website (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^2 C++ library for parallel computations
  - → Created test cases demonstrating performance improvements in parallel computing applications

EDUCATION

- **PhD in Applied Mathematics** March 2017 - December 2020
  EPFL, École Polytechnique Fédérale de Lausanne, Lausanne (CH)
- **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)
- **Ignite program, Stanford Graduate School of Business** January 2023 - March 2023
  Stanford University, Stanford (USA)

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, familiarity with ML frameworks (PyTorch, Tensorflow, scikit)
Software: Familiarity 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)