Luca Mondonico

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EDUCATION

Stanford University — Stanford, CA, US
Ph.D. candidate in Materials Science and Engineering; minor in Computer Science — *Sep. 2023 – Present*
- Co-advised by Prof. Yi Cui and Prof. Zhenan Bao.
- Research in machine learning for materials discovery and efficient AI for wearable and edge devices.
- **2026 Stanford HAI Data Science Scholar**
- **2026 Clear Ventures Fellowship**
- **2024 Chevron Fellowship in Energy**

ETH Zürich — Zürich, CH
MSc in Materials Science, with distinction — *Sep. 2019 – July 2023*
- MSP Scholarship: $13,000 annual stipend; 50 awards across a student body of ∼5,000.
- D-MATL Departmental Fellowship: $2,000 quarterly stipend; one award across a student body of ∼60.

Politecnico di Milano — Milan, IT
BSc in Materials and Nanotechnology Engineering | 110/110 cum laude — *July 2016 – July 2019*

SELECTED PUBLICATIONS

- Hard to Find, Easy to Fool: Witness Rank for Budgeted Scientific Verification. *NeurIPS 2026 AI for Science Workshop*, **Oral**.
- Hierarchical Moiety Insights Drive Rational Design of High-Efficiency Lithium-Metal Electrolyte Formulations. *Nature Energy, 2026*.
- Open Electrolyte Databank: Unlocking Molecular-Mixture Intelligence for Battery Electrolyte Discovery through a Standardized, Multimodal Foundation. *ICML 2026 AI for Science Workshop*, **Spotlight**.

EXPERIENCE

Tesla, Inc. — Palo Alto, CA, US
Cell Engineer Intern — *Mar. 2023 – July 2023*
- Developed internal Python software adopted by 50+ engineers, cutting cell qualification test planning and validation time by 90%.
- Led 3 cell qualification programs, coordinating 100+ test protocols across multiple labs and external vendors.

Materials Engineer Intern — *Feb. 2022 – Dec. 2022*
- Developed and tested prototype potting materials for Model 3, Model Y, Cybertruck, and Semi battery packs, reducing mass by 3 kg per vehicle with projected quarterly procurement savings of $5.2 million.
- Developed accelerated protocols to evaluate the mechanical compliance of battery materials under thermal runaway and super-charging conditions, saving up to 500 hours of active monitoring across programs.

Stanford University — Stanford, CA, US
Research Scholar | Zhenan Bao Group, Chemical Engineering — *July 2021 – Feb. 2022*
- Developed a solution-processable artificial solid electrolyte interphase (SEI) to protect lithium metal anodes.
- Co-designed and synthesized fluorinated electrolyte solvents to improve lithium-ion battery cycling performance.

ETH Zürich — Zürich, CH
Research Fellow & Teaching Assistant — *Sep. 2019 – June 2021*
- Developed transparent, nanostructured carbon–gold composite electrodes for wearable electronics, sustaining up to 50% strain and stable electrochemical performance over 120 cycles.
- Taught ∼25 students one-on-one in graduate-level transport phenomena and PDE-based physical modeling.

Nanyang Technological University — Singapore, SG
Research Intern — *July 2018 – Sep. 2018*
- Led 3 researchers modeling carbon monoxide (CO) adsorption for miniature gas detectors, increasing measured sensitivity by 30%.

SKILLS

ML/AI: Python, SQL, PyTorch, PyTorch Geometric, RDKit; deep learning, graph neural networks (GNNs), multimodal learning, molecular representation learning, generative molecular design, time-series modeling for sensor data, TinyML and efficient inference.
Systems: Distributed multi-GPU training (PyTorch DDP, Slurm).
Languages: Italian (native), English (proficient).

INTERESTS

Volleyball | *Professional player and team captain* | Two-time Italian national champion. — *2013 – 2017*