

Luca Mondonico

512 O'Keefe St, Menlo Park CA 94025 | +1 (650) 507-9027 | lucamondonico.com

EDUCATION

Stanford University

Stanford, CA, US

Graduate Visiting Student – Zhenan Bao Group at Stanford ChemE

July 2021 – Feb. 2022

- Pioneered a solution-processable artificial solid electrolyte interphase for effective anode protection in Li-metal batteries.
- Collaborated on designing and synthesizing fluorinated electrolyte solvents for improved cyclability in Li-ion batteries.

ETH Zürich

Zürich, CH

MSc in Materials Science – GPA: 5.8/6

Sep. 2019 – Feb. 2022

- MSP Scholarship recipient (granted a \$13,000 yearly stipend, 50 scholarships for ~ 5000 students).
- D-MATL Departmental Fellowship (granted a \$2,000 quarterly stipend, 1 fellowship for ~ 60 students).
- Interests: Energy storage and conversion, Materials processing and reliability, Polymers, Hybrid nanostructures.

Politecnico di Milano

Milan, IT

BSc in Materials and Nanotechnology Engineering – 110/110 cum laude

July 2016 – July 2019

RESEARCH & WORK EXPERIENCE

Tesla, Inc.

Palo Alto, CA, US

Materials Engineer Intern

Feb. 2022 – Present

- Developed and tested potting materials for structural battery packs of Model 3, Y, Cybertruck, and Semi. Final prototypes displayed 3 times higher stiffness and 2 times higher elongation, with a 75% reduction in coolant mass uptake.
- Saved up to 500 hours of active test monitoring by designing novel faster testing protocols to evaluate battery materials mechanical compliance in temperature-sensitive scenarios, such as cells thermal runaways and supercharging.

ETH Zürich

Zürich, CH

Research Fellow & Teaching Assistant

Sep. 2019 – Present

- Pioneered nanostructured carbon-gold composite battery electrodes for applications in wearable electronic devices. The transparent battery can be stretched up to 50% without losing the electrochemical stability over 120 cycles.
- Initiated a theoretical framework for simulation and modeling of viscoelastic interfaces and their effects in the presence of electromagnetic fields for lightweight design of electronics composites.
- Provided one-on-one instruction for about 25 students in a graduate-level course on transport phenomena.

Nanyang Technological University

Singapore, SG

Research Intern

July 2018 – Sep. 2018

- Spearheaded a team of 2 international researchers to the implementation of an experimental model for carbon monoxide adsorption on miniature gas detectors, ultimately reaching a 30% increase in the devices sensitivity.
- Promoted low-cost scalability of 2+ miniaturized biomimetic sensors for ultra-fast detection of disease biomarkers.

EXPO 2017 Astana

Nur-Sultan, KZ

Student Representative at the Italian Pavilion

July 2017 – Aug. 2017

- Presented to 20 local organizers a weekly program of 2-hour conferences on the importance of introducing sustainable energy technologies in underdeveloped countries.

Politecnico di Milano

Milan, IT

Student Researcher

Sep. 2016 – Aug. 2019

- Collaborated with a team of 4 in investigating novel polymer blends to be used for industrial mechanical joints. The 6-month project resulted in a prototype which was delivered to a \$80m Italian power engineering company.

PROJECTS

Battery manufacturing: Built a gold-nanowire/carbon-nanotube current collector for stretchable thin-film Li-ion batteries.

Sensor: Implemented a luminescent paper-based carbon-nanotube/polythiophene chemiresistive sensor for toxic gases analysis.

Advanced sustainability economics: Proposed an analytical solution for the economic social optimum in the Basic Climate and Pollution Economy (BCE) model, with reflections on the role of population growth in global sustainable development.

EXTRA-CURRICULAR ACHIEVEMENTS

Nano@Stanford – Volunteer

2022

- Conducted hybrid science outreach demos for sixth graders in rural Colorado and elementary kids in a low resource community in Riverside, CA.

High School Chemistry Workshop – Founder & Lecturer

2016

- Organised 10+ hands-on experiments for the students, gathering a combined 100+ attendees.
- Petitioned my old school for financial support, generating ~\$1200 of funds.

Volleyball – Team Captain – Italian National Champion.

2013, 2015

SKILLS

IT: SolidWorks, Python, OriginPro, MATLAB, \LaTeX .

Languages: Italian (Native), English (Proficient).

Technical: SEM, TEM, AFM, FTIR and Raman spectroscopy.