Loris Emanuelli

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Mechanical Engineering MEng candidate at UC Berkeley with a dual background in product design, mechatronics, sports engineering, operations analytics, and applied machine learning. Hands-on experience building CAD-based mechanical systems, embedded robot prototypes, sensorized test rigs, wearable products, and data pipelines that connect technical validation to practical product decisions.

Education

University of California, Berkeley - GPA: 3.73/4.00 Berkeley, CA
Master of Engineering in Mechanical Engineering *05/2026*
Relevant coursework: Design of Microprocessor-Based Mechanical Systems, Advanced Topics in Design, Machine Learning & Data Analytics, Machine Learning Tools for Energy Transport, CAD, FEA, simulation, optimization, sensors, embedded systems.

Arts et Métiers Institute of Technology - GPA: 3.78/4.00 France
Combined B.S./M.S. Mechanical & Industrial Engineering *2019 - 2024*
Coursework: mechanical design, solid mechanics, materials, manufacturing processes, product and system design, instrumentation, numerical methods, statistics, industrial systems.

Experience

Graduate Student Instructor (Physics 8A), UC Berkeley Berkeley, CA
Mechanics discussion, laboratory, and grading support *01/2026 - 05/2026*

- Teach mechanics, free-body diagrams, measurement interpretation, and structured analytical problem solving to undergraduate students.
- Review technical work for accuracy and provide precise feedback, reinforcing engineering rigor, documentation quality, and repeatable reasoning.

Operations Team Member Intern, La Poste Groupe Paris, France
Operations, database, accounting, and reporting support *07/2024 - 08/2024*

- Maintained organized operational records, reporting workflows, and quality-focused documentation across internal logistics stakeholders.

Additional experience: Tutor, Alveus (math, physics, analytics, 01/2025 - 08/2025); TaskRabbit hands-on furniture assembly and home maintenance support including assembly, fitting, inspection, and repair (06/2021 - 08/2021); Room Service Clerk, Park Hyatt Paris Vendôme (fast-paced premium service coordination, 07/2023 - 02/2025).

Selected Projects

Robogotchi Embedded Robot Pet | *UC Berkeley MECENG 235* *01/2026 - 05/2026*

- Built and validated an electro-mechanical robot pet with ESP32 firmware, non-blocking state machine, motor control, OLED facial expressions, RFID feeding, IMU shake detection, touch sensing, buzzer feedback, telemetry, and web GUI.
- Developed hardware tests for motors, touch, OLED, RFID, and I2C; documented debugging workflows and dashboard-based validation for repeatable demonstrations.

Stride Recover Smart Compression Sleeve | *Human-AI Design, UC Berkeley* *2026*

- Designed a smart hamstring recovery sleeve concept for recreational athletes using interviews, field observations, AI-assisted synthesis, wearable sensing, and return-to-play feedback framing.
- Translated ambiguous muscle-monitoring signals into user-facing recovery confidence, bilateral activation feedback, and product requirements for a low-friction sports wearable.

March Machine Learning Mania Prediction Pipeline | *Independent Sports ML Competition* *2026*

- Reached top 1% performance by building a Python forecasting pipeline with leakage-safe features, walk-forward validation, probability calibration, model sweeps, and final Stage 2 submission checks.
- Engineered tournament, seed, rating, efficiency, pace, conference, and matchup features; benchmarked CatBoost, LightGBM, XGBoost, logistic models, and ensemble strategies.

Operations-Driven Analytics in E-Commerce | *UC Berkeley Capstone 121* *2025 - 2026*

- Framed decision-focused ML for e-commerce demand, inventory, routing, pricing, returns, promotions, and service-level trade-offs using JD.com-scale transaction data and Amazon Last Mile routing data.
- Built the initial Newsvendor decision baseline with critical fractile 0.625 and optimal order quantity near 958 units; defined evaluation around stockout risk, overstock cost, service level, routing cost, and robustness.

PJT Pied – Instrumented Foot Model | *Arts et Métiers* *2024*

- Designed a 3-segment biomechanical foot model in NX/CATIA with internal routing, manufacturable interfaces, strain-gauge instrumentation, and engineering documentation.
- Performed FEA-based structural review, stress/deformation analysis, calibration, inspection, and prototype testing to validate sensor placement and improve reliability.

FormaFlow Dress | *UC Berkeley Advanced Design* *2025*

- Created an actuated morphing wearable using SolidWorks/CATIA design, servo motion, IMU-triggered control, manual override, PLA/TPU 3D-printed mechanisms, fabric integration, and repeated functional testing.

Skills

Mechanical Design & CAD: SolidWorks, CATIA V5, NX, 3D Experience, CAD model generation, assemblies, mechanical components, design refinement, engineering drawings, specifications, manufacturability, tolerance thinking, design documentation.
Simulation, Testing & Prototyping: FEA, structural analysis, stress/deformation, load cases, design verification, additive manufacturing, fabrication, instrumentation, strain gauges, IMU testing, calibration, inspection, troubleshooting, root cause analysis, failure analysis.
Robotics, Embedded & Data: ESP32, Arduino/ESP-IDF, sensors, motors, OLED, RFID, I2C, telemetry, dashboards, Python, MATLAB, SQL, Git, pandas, NumPy, scikit-learn, CatBoost, LightGBM, XGBoost, TensorFlow/Keras, forecasting, optimization, validation.
Communication & Languages: technical reports, project documentation, presentations, design reviews, cross-functional teamwork; French native, English (TOEFL iBT 91), Italian/German conversational.