ALESSANDRO TASSO - US CITIZEN

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EDUCATION

University of Southern California, Viterbi School of Engineering Los Angeles, CA
Master of Science in Mechanical Engineering
Bachelor of Science in Biomedical Engineering (Mechanical Emphasis)

- Relevant Coursework: Computer-Aided Design for Biomedical Devices, Regulation of Medical Devices, Orthopedic Biomechanics, Biomedical Computer Simulation Methods, Statics, Dynamics, Mechanical Behavior of Engineering Materials, Thermodynamics

SKILLS AND CERTIFICATIONS

- Certifications & Honors: SolidWorks CAD Design Associate (CSWA), Viterbi Dean's List: Fall 2021 & 2023, Spring 2022 & 2024
- Skills: AutoCAD / SolidWorks / PTC Creo / Microsoft Office Suite / MATLAB / MAP Agile / Arduino / Minitab / Potentiometry/ Fixture Design / 3D Fabrication / Instron Testing / CNC Machining / PTC Windchill / Rapid Prototyping / DOE / GD&T

EXPERIENCE

USC Advanced Composites Simulation Laboratory Los Angeles, CA
Research Fellow & Team Lead **Aug 2025-Present**

- Design, fabricate, and test high-performance composite structures for the SAMPE 2026 Student Bridge Contest, including a glass fiber beam that achieved 6713 lbf ultimate load and a 2581 strength-to-weight ratio.
- Support lab operations as Team Lead, training and mentoring new members on composite manufacturing techniques, testing procedures, and design workflows.
- Contribute to advanced layup methods, vacuum infusion optimization, and additive manufacturing workflows. Conducted 40+ layup designs to improve fiber alignment, resin flow, and fiber volume fraction for enhanced stiffness and failure resistance.
  Skills: Composite Design & Fabrication, Vacuum Infusion (VI), Hand Layup, Resin Flow Control, Structural Optimization

Medtronic Lafayette, CO
R&D Engineering Intern, Surgical Robotics **Jun 2025-Aug 2025**

- Investigated & mechanically characterized glass-filled PEEK PTFE composites for Hugo RAS instrumentation components, designed rotary-Instron test fixtures in SolidWorks, and leveraged DOE & Minitab to quantify friction and wear performance
- Quantified kinematic backlash in Hugo RAS System instrumentation via precision displacement protocols feeding Monte Carlo tolerance-stack simulations
- Executed rotary-Instron fatigue and ultimate-failure tests on redesigned jaw inserts, performed fracture-surface characterization with Keyence VHX microscopy, and delivered technical reports
  Skills: SolidWorks, PTC Creo & Windchill, Minitab, Instron Testing, 3D Prototyping, DOE, VHX Microscopy, Fixture Design

USC Laboratory for Design of Medical and Analytical Devices Los Angeles, CA
Research Fellow **Aug 2022-May 2025**

- Engineered wearable electrochemical sensors for maternal–infant health, including a glucose-monitoring nursing bra pad (96.8–104.1% accuracy across lactation stages) and a point-of-care theophylline sensor (6.5 µM detection limit)
- Fabricated 150+ LIG electrodes with 14+ day stability and validated performance in 100+ human milk samples, confirming a 0.5–5 mM linear detection range and high selectivity against interferences
- Published *"Mom and Baby Wellness with a Smart Lactation Pad: A Wearable Sensor-Embedded Lactation Pad for On-Body Quantification of Glucose in Breast Milk"* detailing findings
- Co-authored *"A Point-of-Care Device for Theophylline Quantification in Human Milk Using Laser-Induced Graphene Electrodes"*
  Skills: Device Prototyping / Design, Potentiometry, Laser Ablation, 3D Printing / Microfabrication, Data Analysis (MATLAB)

Medtronic Lafayette, CO
R&D Engineering, RPM Test Hardware **Jun 2024-Aug 2024**

- Completed design verification to measure navigational position accuracy of SpineAir surgical reference frames on S8 Stealthstation and O-Arm with a precision of 1.27mm and 2.26mm, respectively
- Conducted a comparative analysis of reprocessed vs. new AQM device performance and used Minitab to compute statistical differences in highlighted functional product requirements mathematically
  Skills: SolidWorks, PTC Creo & Windchill, Minitab, MAP Agile, Instron Testing, CNC Machining, 3D printing, FMEA, DOE

Medtronic Lafayette, CO
Engineering, Sterilization & Operations Innovation **Jun 2023-Aug 2023**

- Led a 750+ sample study validating a 7-day post-sterilization sterility assurance and EO cycle compliance and authored a 30+ page parametric release validation report for Steritech Cycle 415 in line with ISO 11135
  Skills: Microsoft Excel, MAP Agile, Project Management, Quality Management Systems (QMS), Minitab