

# Timothy Lasater

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## EDUCATION

University of California, Irvine

June 2026

Bachelor of Science, **Biomedical Engineering** | GPA 3.99

Specialization in Micro/Nano-scale Engineering

## SKILLS

**Software:** SolidWorks (CSWA Certified), Ansys (CFD, FEA), MATLAB, LabVIEW, C (Arduino), Minitab, Excel

**Process & Quality:** Design of Experiments (DOE), Lean Six Sigma, DMAIC, 5S, Project Management

**Fabrication & Prototyping:** 3D Printing, Breadboarding, Microfluidics, Photolithography, Soft Lithography

## EXPERIENCE

**Research Associate / Device Engineer**, Scientific Horizons Consulting **October 2024 - Present**

- Lead design and prototyping of portable nebulizer devices with novel actuation and drug delivery mechanisms in SolidWorks; led development of >25 device iterations
- Design and construct models of the nasal passages to evaluate targeted aerosol delivery efficiency
- Construct benchtop circuits & apparatus to validate nebulizer designs against commercial competitors, measuring pulsatile airflow frequency, flow rate, & pressure amplitude
- Conduct benchtop testing to evaluate aerosolization efficiency, dissolution, and permeation using custom-designed, 3D printed simulated oral environment, informing design improvements
- Developed a novel experimental protocol integrating dissolution and permeation assays to simulate simultaneous oral drug delivery dynamics, which was adopted company-wide

**Team Lead, PROMPTly: Integrated Test for Amniotic Fluid Detection** **February 2025 - Present**

- Leading design of an at-home diagnostic pad integrating a lateral flow immunoassay (LFT) for detecting biomarkers of Premature Rupture of Membranes (PROM) in amniotic fluid
- Develop and test fluid-routing and volume-control mechanisms to achieve controlled flow
- Optimize material and flow paths with synthetic fluid analogs to validate sensitivity & specificity
- Direct development, prototyping, & market analysis, considering user needs and manufacturing
- Define business plan, go-to-market strategy, regulatory considerations, and IP pathway

**Undergraduate Researcher**, Hui Lab, University of California, Irvine **June 2024 - Present**

- Designed and constructed an automated droplet pump for combinatorial drug screening with computer vision tracking, reducing experimental duration and error rate by up to 70%
- Secured \$1,500 in funding and presented at the UCI Undergraduate Research Symposium
- Simulated and optimized microfluidic flow and mixing using CFD software, improving model accuracy by more than 50% and real-life mixing performance by over 33%
- Optimized low-cost fabrication process to expedite microfluidic design-build-test cycle by 90%, which was implemented in a microfluidics lab class at UCI with >60 students

**Manufacturing Engineering Intern**, Medtronic Cardiac Surgery **June 2025 - August 2025**

- Applied Lean Six Sigma methodologies, including DMAIC, Gemba observation and statistics (Minitab), to engineer a solution to a longstanding, recurring product quality defect (25+ years)
- Spearheaded implementation of a scalable process improvement potentially reducing defect rate by 20%, cycle time by 75%, and with projected annual savings of \$50,000
- Collaborated with R&D, Quality, and line operators to coordinate testing protocols and accelerate verification and validation timelines by two weeks, ensuring seamless handoff after internship