Andrew Lemus

(714) 305-5091 | andrew.lemus7@gmail.com | theandrew.github.io | US Citizen

EDUCATION

Santa Clara University

M.S. Mechanical Engineering, Concentration in Design and Manufacturing — GPA: 3.89 — **June 2023**

B.S. Mechanical Engineering, Minor in Aerospace, Summa Cum Laude — GPA: 3.93 — **June 2022**

Senior Award: Outstanding Academic Achievement in Mechanical Engineering

TECHNICAL SKILLS

Engineering: SolidWorks, Fusion360, Inventor, NX, COMSOL, FEA, GD&T, DFM, Rapid Prototyping, Hand Tools, Drill Press, Mill, Lathe, 3D Printing

Robotics: UR10e, LiDAR, SLAM, NVIDIA Jetson, ROS2 Humble, Nav2, Isaac ROS

Software: C++, Python, MATLAB, Docker, Git, Linux

Additional Background: FIRST & VEX Robotics Team 3309 (2014-2018)

EXPERIENCE

Kazvu Labs— Irvine, CA **June 2023 – Present**

Electro-Mechanical Engineer II

- Owned mechanical design for two autonomous mobile manipulator platforms, including swerve-drive modules and chassis; validated load paths, stiffness, and tipping using first-principles reasoning and FEA
- Led mechanical integration of a UR10e arm onto a custom AMR, designing structural mounts, sensor integration, and compact cable routing to support rapid iteration and tight packaging constraints
- Collaborated with Teknic on actuator sizing and tuning, reducing swerve noise by 20% across two iterations, and produced full GD&T drawings for 15 custom components of swerve and chassis hardware
- Acted as the responsible engineer during bring-up and field testing, refining mechanical interfaces, resolving integration issues, and ensuring hardware readiness for iterative deployments
- Developed ROS2 motor-controller interfaces, URDFs, custom UR driver mods, and automation nodes supporting motion, sensing, calibration, and task sequencing; owned AMR and force-control software
- Contributed to design documentation, assembly notes, and integration instructions supporting ongoing rapid hardware development cycles

Theoretical and Computational Mechanics Lab—Dr. On Shun Pak, SCU **July 2022 – Present**

Graduate Research Assistant *July 2022 – June 2023*

Research Advisor (part-time, remote) *June 2023 – Present*

- Modeled and simulated micro-scale swimmers in COMSOL, running parametric sweeps over 5 diameters and 20+ confinement ratios, with MATLAB post-processing to analyze low-Re propulsion performance
- Analyzed swimmer locomotion in porous media by running 20-value resistance sweeps over a range of contraction lengths and performing MATLAB data scripts to quantify propulsion reduction
- Co-authored two journal publications (Physics of Fluids 35:081907 (2023); Phys. Rev. E 109:065106 (2024))

Mask Sterilizer—Dr. Amin Kassis MD, Harvard University **September 2020**

Mechanical Engineer Consultant

- Led thermal and flow analyses to validate sterilization performance, built a SolidWorks prototype with 3D-printed subsystems, and improved uniform coverage by 20% over two design cycles
- Collaborated with Harvard Professor of Radiology Dr. Amin Kassis and a small engineering team to design a portable steam-based mask sterilizer, defining requirements for a sub-30-minute, 121°C cycle

VersaEd—Villa Park, CA **June 2020 – August 2020**

Software Architecture Engineer

- Developed web-based learning tools and OCR interfaces in Mathematica for automated data extraction and decision support

Vision Miner—Santa Ana, CA **July 2019 – September 2019**

Mechanical Design intern

- Designed and prototyped a filament dehydrator product using SolidWorks; validated thermal and mechanical performance through iterative testing and ensured stable 130°C operation for 12+ hours for PEEK filament
- Designed a high-temperature metal filament spool; released as commercial product and sold to customers

PROJECTS

LATAM Intelligent Filter for Education (LIFE)—Senior Design Project, SCU **June 2021 – June 2022**

- Designed a tabletop water-filtration device with a feedback-controlled flow system, creating CAD models, static FEA, sensor & actuator integration, and engineering drawings
- Fabricated the working prototype and presented the final system to a four-judge panel (Thesis)