Andrew Lemus

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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, Abaqus, FEA, GD&T, DFM, Rapid Prototyping, Hand tools, Drill Press, Mill, Lathe, 3D Printing

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

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

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

EXPERIENCE

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

Electro-Mechanical Engineer II

- Owned mechanical design of swerve-drive modules and AMR chassis, applying first-principles reasoning with FEA and static-stability analyses to validate load paths, rigidity, and tipping behavior
- Led mechanical integration of UR10e arm onto custom AMR platform, designing structural mounting, sensor integration, and cable-routing solutions to support rapid iteration and tight packaging constraints
- 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 hardware interfaces, URDFs, custom UR driver modifications, and automation nodes supporting motion control, sensing, calibration, and task sequencing
- Collaborated with supplier (Teknic) on actuator sizing and tuning, and provided GD&T drawings to fabrication partners to ensure accurate manufacture of custom components
- 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 using COMSOL Multiphysics, applying nondimensional and low-Reynolds-number fluid mechanics to validate biological propulsion behavior
- Performed CFD and FEA studies on non-Newtonian flows, building custom MATLAB post-processing scripts for visualization, comparison, and validation
- 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

- Collaborated with Harvard Professor of Radiology Dr. Amin Kassis and a small engineering team to design a portable steam-based mask sterilizer, defining requirements and evaluating product use cases
- Performed thermal and flow analyses to validate sterilization performance and developed a SolidWorks prototype with 3D-printed subsystems for functional testing

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—Irvine, 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
- 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)