LUCCA VENEGAS

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EDUCATION

University of Michigan, College of Engineering, Ann Arbor, MI — **Ann Arbor, MI**
Bachelor of Science, Mechanical Engineering, Robotics Concentration — *Class of 2029*
Relevant Coursework: Solid Mechanics*, Programming and Intro Data Structures*, Physics: Electricity and Magnetism*

EXPERIENCE

Neurobionics Lab - University of Michigan Robotics — **Ann Arbor, MI**
Assistant Researcher — *August 2026 - Present*

- Designed and packaged lithium-ion cell configurations against a specific envelope constraint within the leg and ankle joint of the open-source prosthetic leg, with a capacity target of ~1-2 Ah, and nominal voltage constraint of 36V.
- Researched, contacted, and negotiated with battery manufacturers to scale custom pack design for worldwide, open-source producing, compiling design requirements for mass manufacturing for different companies and modifying cell design accordingly

Michigan Autonomous Aerial Vehicles — **Ann Arbor, MI**
Structures Design Engineer & IARC Pilot — *August 2025 - Present*

- Fabricated carbon fiber drone frame panel by keeping composite stack thickness < 4 mm and following vibration targets that provide the most optimal LiDar and Camera mounting for computer vision applications
- Water jetted all four drone frames, verifying that part fabrication met manufacturing drawing tolerances through precision caliper measurements.
- Piloted the designed Autonomous Aerial Vehicle at the International Aerial Robotics Competition in 2026, supervising the autonomous drone through competition runs and conducting maintenance checks to ensure the drone performed as designed under extreme heat conditions

Corporate Strategy & FORGE - AdventHealth — **Altamonte Springs, FL**
Strategy Intern — *May 2026 - June 2026*

- Built a proof-of-concept motion-activated lobby welcome system integrating a Zebra FXR90 UHF RFID reader with a Proto Luma display to trigger personalized content
- Developed RSSI-based proximity logic to detect approaching RFID-tagged visitors within a 5 ft radius and trigger content instantaneously; validated across 25 trials with multiple badges and 3 individuals in the target area without disrupting the user experience, achieving 100% reliability
- Configured reader firmware and network stack end to end, tuning antenna power to 25–30 dBm for consistent badge detection, and integrated an MQTT listener with auto-reconnect for 60 seconds and outage alerting, ensuring the lobby experience ran reliably without manual intervention
- Presented the working prototype to corporate strategy and FORGE leadership for deployment across 57 hospitals

PROJECTS

Arctos 6-DOF Robotic Arm — **Ann Arbor, MI**
Individual Project — January 2026 - Present

- Fabricated and Assembled the 3-d printed 6-DOF robotic arm skeleton, working from a 1,000-part CAD model, coordinating manufacturing timeline and plan for a 25 week build time.
- Engineered a CAN bus network linking six servo motor drivers and an Arduino-based gripper controller, using a daisy-chained signal pair and star-topology power distribution. Developed Python script to verify encoder functionality and calibration
- Developing a SocketCAN driver in C++ and LeRobot integration to collect teleoperation datasets, targeting a self-designed imitation-learning workflow consisting of real-time video and closed-loop feedback to share across the entire open-source robotics community

TECHNICAL SKILLS

Programming & Software: C++, Python, MATLAB, Linux, SolidWorks, Onshape, Autodesk Fusion 360
Hardware & Fabrication: CAN bus wiring and termination, stepper and servo driver configuration, circuit wiring, multimeter fault isolation, soldering, carbon fiber panel cutting, waterjet, FDM 3D printing
Technical Areas: Robotic Systems, Hardware Bring-Up, Fieldbus Communication (CAN, MQTT), Wearable Robotics, UAV Structures
Certifications: FAA Part 107 Remote Pilot Certificate (2026); da Vinci Xi Robotic Technical Training, AdventHealth (2026)
Languages: English and Spanish fluency