

# Eric A. Rosenfeld

## Mechatronic Engineer

(805) 448-8935 | ericalanrosenfeld@gmail.com | www.linkedin.com/in/eric-rosenfeld | earosenfeld.com | Santa Barbara, CA

Dynamic Mechatronic Engineer with a foundation in robotic design, mechanical systems, and software proficiency. Known for a quick learning curve and innovative problem-solving.

### PROFESSIONAL EXPERIENCE

#### Automation Engineer – Global Contract Manufacturing, Union City, CA

August 2019-August 2023

- Designed cosmetic inspection system using robotic arm and vision system for part defect detection.
- Crafted specialized fixtures for robotic welding, achieving a 400% output increase and reduced tolerance stackup.
- Spearheaded various designs including automated pneumatic sand blasters, hydraulic load testers, and portable milling tools; conducted all FEA simulations company wide.
- Standardized companywide SolidWorks drawings and CAD settings; optimized ERP integration.
- Partnered with suppliers to align project outcomes with design specifications and delivery timelines.
- Authored 90% of QC automation and designed Python Middleware to bridge QC Software with ERP, leading to acquisition by HIGHQA.
- Oversaw CNC monitoring and DNC for CNC machines, integrating documentation from CMMs.
- Played a key role in the design of heavy machinery test fixtures, leading to a 20% increase in final part acceptance.

#### Power Electronics Test Engineer Intern – Tesla, Palo Alto, CA

Jan 2019 – May 2019

- Developed Gen 3 Wall Connector test systems, swiftly executing 20+ power electronic tests.
- Designed testing equipment identifying critical flaws in Gen 3 Wall Connector before China market release.
- Expertise in SWC, SPI, and CAN, essential for robotic system interactions.
- Formulated testing procedures alongside Firmware, Design, and Electrical teams, ensuring product compatibility and integration.
- Designed proprietary pneumatic systems, leading a \$140,000 tester project that incorporated high precision probes for accurate measurements.

#### Mechatronics Lab Professor –San Jose State University, San Jose , CA

Jan 2018 – Dec 2018

- Developed diverse mechatronic systems, from precision electronic scales to printer carriages, emphasizing seamless hardware-software integration.
- Programmed and controlled various motors, ensuring optimal performance in dynamic mechatronic environments.
- Delivered comprehensive instruction on mechatronic system design, theory, and hands-on troubleshooting, preparing students for real-world applications.

#### Mechanical Design Engineer – Pampa Technologies, Fremont, CA

May 2017 – Sep 2017

- Spearheaded CAD development for Automated Guided Vehicles (AGV)
- Led multiple R&D initiatives, resulting in successful prototyping and eventual new product launches in the AGV domain.
- Conducted intricate Finite Element Analysis (FEA) on AGV components, ensuring maximum durability and performance.
- Orchestrated PLC assembly and managed field assemblies for AGV projects valued over \$2M, ensuring efficient deployment

#### Solar Engineer – Spartan Superway, San Jose, CA

May 2016- Jan 2017

- Led the team for the first Elevated Solar Powered Installation for an Automated Transit Network; collaborated with international engineers from France, South Korea, and Brazil
- Engineered proprietary podcars, optimizing photovoltaics and grid energy for 24/7 operations.
- Sole student presenter at the Podcar City Conference in Antwerp, Belgium
- Lead Engineer for webinar with US Department of Transportation.

## AREAS OF EXPERTISE/ CORE COMPETENCIES

Robotics & Systems Control	Design & Analysis Tools	Software & Programming	Project Management
Circuit Diagnostics	Solidworks/Creo	Python /C/C++/BASIC/Matlab-	Product Presentation
Logic Analyzation	Ansys/Comsol	DAX/ SQL /Watlow	Technical Support
Motion Control/PID	3D Printing/Laser Cutting	M-Code/G-Code	Onsite Troubleshooting
Sensor DAQ	GD&T/ Manufacturing	VBA/C#	Project Management
Photovoltaic Implementation	Processes	PowerBI	

## PROJECTS

### Fully Autonomous Trash Recycling Robot

Team lead for a fully autonomous robot with universal end-effector capable of retrieving trash items in outdoor environments. Created custom mechanisms and transmission of power transfer through movable joints. Programmed precise localization technique using extended Kalman filter to fuse RTK-GPS, IMU, and point cloud information for navigational accuracy. Implemented YOLO neural network to identify plastic bottles. Designed, 3D Printed, machined, and assembled mechanical parts.

### Hackathon Hacker - UCLA IDEA Hacks

Developed automed page flipper and textbook reader using a raspberry pi and arduino in under 36 hours. Designed precision parts for 3D printing; mechanical armature with flex sensor was used to flip pages controlled by Arduino. Raspberry Pi with Camera module was used to read pages utilizing basic OCR conversion.

### 6-DOF 3D Printed Robotic Arm

Built a 6-DOF robotic arm with novel 3D printed mechanical linkages to reduce weight by mounting motors to base. Wrote custom I2C to UART protocol for communication between Arduino PID motor controllers. Implemented PID positional control of joints with hall sensors on Arduinos.

### Induction Torch

Founder and Team Lead for custom Induction Torch. Designed Injection Molded housing with custom replaceable battery compartment, user interface, and proprietary bayonet connection for coil. Designed a proprietary ZVS circuit with a Mosfet driver controlled by ESP32. Designed battery management system with fast charging and pass through heating when connected to outlets. Programmed TFT interface controlled by ESP32

## Certifications

Solidworks Mechanical Design Professional  
 Solidworks Sheet Metal Professional  
 Solidworks Surfacing Professional  
 Radiation Isotope Certification  
 Tooling U-SME

## Publications

Case Study of a Solar Power Installation for an Automated Transit Network in San José (2016)

## EDUCATION & ACTIVITIES

### Undergraduate Bachelor of Science in Mechanical Engineering GPA 3.714– San Jose State University, Concentration in Mechatronics

Recognitions: Dean's Scholar Award | Material Engineering Promise Award | National Society of Collegiate Scholars | Radiation Isotope Safety Certificate | David Brown Scholarship | ASES Published Paper | DOT Webinar  
 Club Affiliations: ASME | The Engineering Honor Society | STEM club | SCE Club | Robotics Club

### Santa Barbara City College Program, Middle College Program (High School) GPA 3.868

Recognitions: Dean's Scholar Award | Valedictorian (Senior of the Year) | National Society of Collegiate Scholars  
 Club Affiliations: Computer Science Club | Lead in Raytheon Engineering Competition