

# BLAINE C. RIEGER

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76 Laurelhurst Drive  
Ladera Ranch, CA 92694

## EDUCATION

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- Loyola Marymount University, Los Angeles, California** August 2019 - Expected 2024  
*Master of Science, Electrical Engineering*  
Graduate Thesis Title: "Modeling Driver Perception of Accelerator Pedal Input"
- Worcester Polytechnic Institute, Worcester, Massachusetts** August 2012 - May 2016  
*Bachelor of Science, Electrical and Computer Engineering*  
Undergraduate Major Qualification Project Title: "Smartphone-Based 12-Lead Electrocardiogram"

## WORK EXPERIENCE

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- Novanta, Irvine, California** November 2022 - Present  
*Electrical Engineer*
- Novanta (Acquired Motion Solutions January 2024)** January 2024 - Present  
**Motion Solutions** November 2022 - January 2024
- Collaborate with mechanical, electrical, and automation department to design and build custom electromechanical sub-assemblies for genomics, medical, life sciences, semiconductor and other industries.
  - Develop specialty hardware to test and measure life cycle, accuracy and repeatability of electromechanical hardware.
- Engineering Innovations, Rancho Santa Margarita, California** September 2021 - November 2022  
*Manufacturing Assistant*
- Manufactured and inspected components for government and commercial contracts to specification while maintaining ISO 9001 quality management system.
- Loyola Marymount University, Los Angeles, California** May 2019 - December 2022  
*Graduate Research Lab Assistant*
- Lab assistant at the Loyola Marymount University in the Rehabilitation, Assistive Tech and Human Control Theory Lab (REACT). Developed, manufactured, and tested electrical hardware and software for experiments conducted in the REACT lab. Maintained simulator and test fixtures.
- Rye Electric, Rancho Santa Margarita, California** May 2020 - August 2021  
*Engineering Consultant*
- Consultant for electrical engineering contractor. Developed and programmed electrical hardware. 3D modeled and aided in the machining of components and assemblies.
- Rye Electric, Rancho Santa Margarita, California** July 2016 - August 2018  
*Project Engineer*
- Engineer at electrical contractor. Carried out commercial electrical engineering projects in accordance with approved technical specifications.
- College Summer Internships**  
*Engineering Intern*
- Rye Electric, Rancho Santa Margarita, California June 2015 - August 2015
  - Schneider Electric, Diamond Bar, California June 2014 - August 2014
  - Technologent, Irvine, California June 2013 - August 2013
  - Novak Electronics, Irvine, California June 2012 - August 2012

## RESEARCH PROJECTS

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**Tripoli Level 3 High Power Rocket** **Present**  
*Personal Project - Level 3 Attempt Flight - Min. Total Impulse of 5,120.01 (N·s) - M Class Motor*

- Develop bare-metal ARM based flight computer to log flight data and manage separation events during flight. Computer to be capable of communicating tracking and telemetry via down-link to base station.
- Design and fabricate composite structural and aerodynamic components for rocket. Simulate aerodynamic stability and performance with various payload and motor configurations.

**Modeling Driver Perception of Accelerator Pedal Input** **Present**  
*Loyola Marymount Research Assistant / Master's Thesis*

- Design software and hardware to investigate the relationship between the perceived accelerator pedal application to the measured input
- Proposed solution will be a model from which a reference table can be readily derived

**Smartphone-Based 12-Lead Electrocardiogram** **December 2015**  
*Worcester Polytechnic Institute Major Qualifying Project*

- Designed ECG analog circuitry and PCB which was manufactured and populated with components
- Interfaced analog PCB with embedded ARM processor to handle analog to digital conversion in addition to Bluetooth communication with smartphone

## PUBLICATIONS

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Friedman, J., Murphy, S., and **Rieger, B.C.** "Inexpensive, Portable, Smartphone-Based 12-Lead Electrocardiogram." *Worcester Polytechnic University*, 2015.

## CERTIFICATIONS

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**Tripoli Level 1 & 2 High-Power Rocketry** **2015**  
**Tripoli Level 3 High-Power Rocketry** **Expected Completion 2025**

## AWARDS AND SCHOLARSHIPS

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**Shu Family Endowed Scholarship**, Academic Scholarship **2019 - 2020**  
**Edward J. and Mildred P. Sydor Scholarship**, Academic Scholarship **2013 - 2016**  
**Worcester Polytechnic Institute Scholarship**, Academic Scholarship **2012 - 2016**  
**Eagle Scout**, Boy Scouts of America **2011**

## SKILLS

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**Computer Software:** EDA (Kicad, Eagle), MATLAB, GNU Octave, IDE (Eclipse, STM32 Cube IDE), CAD (Solidworks, Fusion 360), Microsoft Office

**Programming Languages:** C, C++, Python, G-Code. Limited exposure to: (VHDL, Verilog, Assembly)

**Communication Interfaces:** I2C, SPI, USB, CAN

**Lab Equipment:** Oscilloscope, Function Generator, Multimeter, Network Analyzer, Variable Power Supply, Soldering (Hand, Reflow)

**Fabrication:** PCB Assembly (Rigid / Flexible PCB, SMD / Through-Hole Components), Milling (Manual, CNC), Lathe (Manual, CNC), 3D Printing, Basic Welding (Arc, TIG, MIG), Various power and hand tools

## ACTIVITIES

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**Tripoli Rocketry Association** **2015 - Present**  
**Loyola Marymount University IEEE Club** **2020 - 2021**