

# Blaine Allen

Experienced with rapid problem-solving to design and build systems solutions from first principles of Physics and Economics.

## CURRENT

Engineering and building CubeSat

Pursuing Welding Certificate

HAM Radio License Test

Astronomical Society Engineer

## EDUCATION

Computer Engineering EE + CS  
Masters of Science

GPA: 3.5 | 2018-2023

Missouri University of Science & Tech  
Coursework: Mechanical vibrations, statistical data analysis, additive metal manufacturing design and optimization, control systems, etc.

Computer Engineering EE + CS  
Bachelors of Science

GPA: 3.2 | 2014-2018

Missouri University of Science & Tech

Aerospace Maintenance Technology  
Associates of Applied Science

\* Military A&P Equivalent \*

GPA: 4.0 | 2011-2014

Community College of the Air Force

## ACCOMPLISHMENTS

**Built and led Community Volunteer Park, Beach Cleanup Projects** - Removed over 15,000 gallons of debris from parks and [Boca Chica Beach](#). 2015, 2020, 2021, 2022, 2023, 2024

**Homeless Shelter Supervisor** - Poised to resolve high-stakes crises when solo-operating 60-person shelter. Increased operational efficiency by ~70%. 2020 to 2022

**Published 4 engineering papers** in brain-machine interface, electrical time series analysis, and fluid systems. - [Google Scholar](#). 2021, 2022

**Ironman Triathlete**  
(140.6, 70.3) 2016, 2018

**Awarded Air Force Achievement Medal** for actions taken "averting \$633.6 million in catastrophic damages" to the fleet of aircraft. 2012

## EXPERIENCE (see website for summaries)

### Graduate Research - Electrical Engineering & Computer Science

Missouri University of Science & Technology - Rolla, Missouri

Applied Computational Intelligence Laboratory - Electrical & Computer Eng 2020 - 2023

Mechatronics & Controls Laboratory - Mechanical & Aerospace Eng 2018 - 2020

- Engineered the first quantitative head injury prognosis from first principles using electrical signal processing, fluids, and differential equations for the US Army.
- Built quantitative head injury assessment of electrical brain signal data using time series analysis, wavelet convolution, machine learning, and source reconstruction.
- Designed brain-machine interface mechatronic control systems. Electrical time series analysis, signal processing for ~40 bits/min 3-axis thought-control output.
- Instructed senior mechanical engineering systems design and experimentation 2x (mechanical, electrical, heat transfer, high-pressure fluids), 5-year Physics tutor.

### Engineer & Astronomical Science Educator

South Texas Astronomical Society (NASA Partner) - Brownsville, TX - 2023 to Present

- NASA ISS Downlink RGV 2023, NASA Students to Launch, Guiding design of hybrid rocket (NO<sub>2</sub> + HTPB) for high school team for 10,000 ft altitude launch attempt.
- Engineered and oversaw structural and mechanical upgrades and repair of telescope observatory at the Southmost Library for the city of Brownsville.

### Crew Chief Mechanic - Stratotanker Refueling Aircraft (KC-135)

U.S. Air Force: Staff Sergeant - Secret Security Clearance

McConnell Air Force Base, Wichita, KS - 2010 to 2018 - Summary on my portfolio website

Supervised and performed the inspection, production, and hands-on maintenance of all aircraft systems. Responsible to sign off on final system checkouts for crewed flight.

- Accelerated operational checks and logistics for vehicle subsystems: 3-phase high-voltage electrical, structural, mechanical, high-pressure 3000 psi hydraulics/pneumatics, avionics, satellite communications, and F-108 jet engines.
- Responsible for identifying potential hazards, root cause analysis, and overseeing repairs in Preflight and Postflight operational procedures of suitability for flight.
- Thrived in a fast-paced environment with aggressive timelines on over 700 missions and combat zone deployment. 100% mission success and QA record.

## TOOLS

	Years
Mechanical, electrical, pneumatic hand and power tools	20+
Office and Documentation: Excel, Access, PowerPoint, Word, Visio	20+
Strong interpersonal and communication team skills	18+
Read and understand technical drawings, schematics, data reports	15+
Programming Software: C/C++, Python, Verilog, Assembly	5+
Statistical Tools: MATLAB, R-Studio, NI LabVIEW	5+
CAD: OnShape, AutoCAD, currently learning NX	4+