

Blaine Allen

EXPERIENCE

Graduate Research Engineer

Missouri University of Science & Technology - Rolla, MO - 2018 to 2023

Electrical & Computer Engineering Department - Computational Intelligence Lab

Mechanical & Aerospace Engineering Department - Mechatronics Lab

- Designed and built DoD-funded engineering projects in electrical brain-computer interface, fluid system modeling, and titanium wire-feed welded cubesat chassis for cubesat application. Extensive project management and team leadership experience.
- Engineered mechatronic control systems for quadcopter/cursor control with time series analysis, electrical signal processing, and wavelet convolution pattern recognition.

Engineer & Space Science Educator

South Texas Astronomical Society - Non-profit - Brownsville, TX - 2023 to Present

- Engineered solution for mechanical repair and upgrades to telescope observatory at the Southmost Library for the public.
- Guiding engineering of hybrid rocket (NO₂ + HTPB) for high school design team for 10,000 ft altitude launch attempt.
- Led NASA Students to Launch event and regularly educate the community about rocketry design and space exploration.

Crew Chief Stratotanker Aircraft Mechanic

U.S. Air Force - McConnell AFB, KS - 2010 to 2018

Staff Sergeant - Secret Security Clearance

- Supervised and performed the inspection, troubleshooting, and hands-on maintenance of all aircraft systems. Daily heavy equipment and JLG lift equipment operation. Responsible for signing off on final system checkouts before crewed flight.
- Damage analysis and preventative maintenance of aircraft subsystems including mechanical, electrical, high-pressure hydraulic, high-pressure pneumatic, avionics, satellite communications, and F-108 jet engines as well as warehouse management.
- Engaged in over 60 temporary duty missions and supported ~150 missions through Middle East combat zone deployment. 100% mission success and QA record.

TOOLS

Experience (In Years)

| | |
|---|-----|
| Office Applications: Excel, Access, PowerPoint, Word, Visio | 20+ |
| Mechanical and pneumatic hand tools, power tools | 16+ |
| Programming: C/C++, Python, Verilog, Assembly | 5+ |
| Statistical Tools: MATLAB, R-Studio | 5+ |
| CAD: OnShape, AutoCAD, learning NX | 4+ |

EDUCATION

Computer Engineering (CS + EE) - Master of Science

Missouri University of Science & Technology - 2023

- Salaried graduate researcher and course instructor in mechanical engineering.
- Coursework: Mechanical vibrations, statistical data analysis, data mining, nonlinear optimization mathematics, advanced computational intelligence, clustering, neural networks, artificial intelligence, control systems, additive metal manufacturing design and optimization.

Computer Engineering (CS + EE) - Bachelor of Science

Missouri University of Science & Technology - 2018

- Engineering disciplines ranged from aerospace, mechanical, and electrical, to computer architecture and process optimization. Physics tutor for 5 years.
- Coursework: Modern Physics, Electronic Devices, C++, Assembly Code, Discrete Math, Data Structures, Digital Engineering, Computer Architecture, Nanotechnology, Communication Networks, Digital Signal Processing, CAD, FPGAs, Engineering Innovation, Differential Equations, Financial Mathematics.

Aerospace Maintenance - Associates of Applied Science - Military A&P Equivalent

Community College of the Air Force - 2014

- Trained in high-responsibility leadership and precision inspection, maintenance, and system checkout of all aircraft airframe and powerplant subsystems.
- Practiced resolving issues in manufactured parts - including installation of mechanical parts, executing aviation system diagnostics, root cause analysis, and implementing standard practices for repair procedures.

ACCOMPLISHMENTS

1st Place University Build Competition - Developed electrical electroencephalograph for brain-computer interface for thought-controlled 50 bits/min information transfer rate. 2018

Worked full time to pay my way through college - Driven to take on extreme workloads and schedules of both full-time school and full-time employment for over 10 years.

Homeless Shelter Supervisor - Used supply chain management, expert communication, and algorithmic thinking to decrease cost and increase operational efficiency by ~70%. Poised to resolve high-stakes crisis situations when solo-operating 60-person shelter. 2020 to 2022

Ironman Triathlete - (140.6 Boulder, CO & 70.3 Coeur d'Alene, ID) - 2016, 2018

Organization & Leadership of Community Clean-up Projects - Removed over 12,000 gallons of debris from parks, streets, and Boca Chica Beach. 2015, 2016, 2020, 2021, 2022, 2023

U.S. Air Force Achievement Medal - Awarded for actions taken "averting \$633.6 million in catastrophic damages" - 2012