

Stephen Bauman

Hands-on Engineer | Mind-on Imagineer

Interdisciplinary brainstormer with 5+ years of individual and team experience with electrical, optoelectronic, and sensing technologies. Seeking a team designing, prototyping, and testing futuristic real-world systems in areas such as robotics, spacecraft, renewables, AR/VR, biohacking, and communications.

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TECHNICAL EXPERIENCE

Lead Photonics Engineer & Co-Director of Nanotechnology Nanomatronix, LLC

09/2018 – Present

Fayetteville, AR

Harsh environment test/qual; Tech transfer from research to industry

Achievements/Tasks

- Won \$125k NASA STTR grant to develop graphene-based water filtration membrane for human space systems
- Worked with clients to establish crucial test protocols for spaceflight qualification of photonic & optoelectronic devices
- Assessed, procured, and set up bottom-up nanotube synthesis system components + optical & electronic test hardware

Optical Sensors Graduate Researcher University of Arkansas

08/2013 – 12/2018

Fayetteville, AR

Achievements/Tasks

- Won \$35k AR state grant for nanofabrication & sensor research
- Published 10+ journal articles and 25+ presentations
- Developed advanced lithography process & custom optical system
- Managed projects and streamlined team's data organization, knowledge-sharing, and collaborative technical writing efforts

Research Fellow (2017 & 2018 Summers) U.S. Naval Research Laboratory

06/2017 – 08/2018

Washington, D.C.

Advanced optical & electronic device R&D

Achievements/Tasks

- Published prototype development and COMSOL simulation of seven-segment displays based on dynamic plasmonic nanopixels
- Coupled four-point probe electrical transfer characteristics with optical spectroscopy data for doped graphene transistors
- Created MATLAB tool for rapid processing & data-analysis, shortening time to obtain actionable information by >1000%

RF Engineering Intern Argonne National Laboratory

06/2012 – 08/2012

Lemont, IL

Achievements/Tasks

- Qualified operational design of prototype RF resonance system
- Corroborated RF field models with hands-on laboratory spectrum analysis data to evaluate microwave mode suppression
- Accelerated automated lab tests by adding live data output to control system LABVIEW code

INTERESTS

Robots/Drones

Space systems

Creating the future

AR/VR

Sci-fi literature

Team sports

Bouldering

EDUCATION

Ph.D. in Microelectronics-Photonics University of Arkansas

08/2013 – 12/2018

Fayetteville, AR

B.S. in Engineering Physics: Electrical Southeast Missouri State University

08/2009 – 05/2013

Cape Girardeau, MO

SKILLS & TOOLS

Robotics & Analog/Digital Electronics

microcontrollers, soldering, circuit design, DMM, oscilloscope, function generation, spectrum analyzer, signal processing, components

Optics & Photonics

sensing, spectroscopy, spectrum analysis, lasers, fiber, components, system design, modeling, UV-Vis, Raman, FTIR, RF, detectors, displays

Software

COMSOL, Labview, CAD, Blender, Microsoft Office, GitHub, Visual Studio

Programming

Arduino, C/C++, Python, MATLAB, VHDL, HTML/CSS, Javascript

Fabrication & Prototyping

nano/microfab, cleanroom, CAD, tool operation, machinist interaction

Communication

technical writing & presentation, Spanish language proficiency

CERTIFICATIONS

Electrical Engineer (2013 – Present)

Passed NCEES Fundamentals of Engineering Exam for Electrical Engineering

Certified IPC Specialist (06/2019 – Present)

J-STD-001 and Space Applications Electronic Hardware Addendum

Graduate Certificate of Entrepreneurship (2018)

University of Arkansas Walton College of Business

LEADER & VOLUNTEER

Co-founder & President: Arkansas Laserbacks SPIE & OSA joint chapter

01/2014 – 12/2018

Tasks/Achievements

- Secured over \$30k in grants and scholarships for chapter activities
- Inspired 500+ students & parents through local educational outreach
- Facilitated learning of 200+ students at SPIE leadership workshop

Manuscript Reviewer OSA Publishing

2015 – Present