Matthew B. Jaskot, PhD

jaskotmb@gmail.com • (804) 840-7337 • mattjaskot.com • 623 Deframe Ct., Golden, CO 80401

Objective

To use my laboratory research skills and mechanical design experience to find a hands-on engineering job.

Experience

Pioneer Astronautics (Lakewood, CO)
Senior Engineer (Feb 2021 – present)

- Mechanical & automation design of lunar material processing system (lunar dirt to iron/oxygen)
- Induction melt furnace design (mechanical & electrical)
- Design/project management/fabrication of prototype Stirling engine for space propulsion
- SBIR proposal and report preparation
- Hands-on troubleshooting, assembly, machining of mechanical systems/components
- Experimental design

Colorado School of Mines (Golden, CO)
Research Assistant (Aug 2014 – Dec 2020)

- Organic semiconductor research under Dr. Jeramy Zimmerman

Cavotec USA (Mooresville, NC)
Mechanical Engineer (Jul 2014 - May 2014)

- Design of ship-to-ship mooring system for US Navy

Encompass Machines (Rock Hill, SC)
Mechanical Engineer (Jan 2012 - Jul 2012)

- Design of robotic welding equipment

Li-ion Motors/Skypower Solutions (Mooresville, NC)
PV Systems Engineer (Jul 2011 - Dec 2011)

- Design of prototype solar concentrator

Sencera International (Charlotte, NC)
Process Engineer (Jun 2008 – May 2010)

- PECVD equipment design/build for a-Si

Education

Colorado School of Mines (Golden, CO)
PhD, Materials Science (Dec 2020)

- Dissertation: “Linking Morphology to Electronic Properties in Small-Molecular Organic Semiconductors”

University of Delaware (Newark, DE)
BS, Mechanical Engineering (May 2008)

- Mathematics Minor
- 3.828 GPA cumulative
- National Merit Scholar

Interests

- Trail running, skiing, camping, canyon rappelling, motorcycle & Toyota 4x4 repair/maintenance

Scientific Technical Skills

- Equipment design: optical, mechanical, communication, and system components (highlighted examples: mattjaskot.com)
- Experimental design: material-property relationships in semiconductors
- Statistical data analysis
- Process development and semiconductor device modeling/optimization
- Technical writing (scientific literature, SBIR/government proposals, technical manuals)

Equipment/Semiconductor Process Skills

- Focused Ion Beam Milling (FIB)
- (Scanning) Transmission Electron Microscopy (S/TEM)
- Scanning Electron Microscopy (SEM)
- Variable-Angle Spectroscopic Ellipsometry (VASE)
- Fourier Transform Infrared Spectroscopy (FTIR)
- X-Ray Crystallography (XRD)
- Atomic Force Microscopy (AFM)
- External Quantum Efficiency (EQE), Time-Resolved Photoluminescence (TRPL), and Current-Voltage-Brightness (IVB) measurements on semiconductor devices
- Operation of vacuum equipment to deposit thin films (thermal evaporation, PECVD, sputtering)
- Troubleshooting and maintenance of vacuum equipment (cryopumps, turbomolecular pumps, mass flow controllers, vacuum gauges, leak detection, residual gas analyzers)
- Sample characterization in clean-room environment
- Wet chemistry processing/etching/cleaning
- Handling high-purity/pyrophoric gases, gas delivery systems

Electrical/Mechanical Design Skills

- Machine and parts design in SolidWorks
- Geometric Dimensioning and Tolerancing (GD&T)
- Working closely with machinists and fabricators to make parts
- Milling machine operation (manual Bridgeport, ProtoTrak CNC on aluminum, steel, stainless, nickel, etc.)
- Design and system integration of a wide range of sensors
- Hydraulic and vacuum systems design
- Modeling (Finite Element Analysis, heat transfer, fluid flow)
- Automation (CoDeSys, PLCs, sensor integration)
- Electrical troubleshooting and circuit design

Software Skills

- Python: write communication/control/analysis scripts
- R: statistical data analysis, publication-quality plots
- SolidWorks: mechanical/electrical design and drawings
- Arduino: communication with microcontrollers
- Automation (CoDeSys, PLCs, sensor integration)

» Please refer to LinkedIn for a more detailed employment history, and mattjaskot.com to see examples of my work «