David K. Strott

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Education

Bachelor of Science: Aerospace Engineering Sciences	University of Colorado, Boulder	08/2000 – 05/2003	Boulder, CO
Non-Degreed: Engineering Systems	Colorado School of Mines	08/2006 – 08/2007	Golden, CO
Non-Degreed: Computer Science and Engineering	University of Colorado, Denver	01/2011 – 12/2012	Denver, CO

Experience and Responsibilities

Founder/Engineer	**Revolution Engineering**	**01/2011 – Current**	**Lakewood, CO**

- Telerobotic systems blending UAVs and VR.
- Optical sensor navigation systems for drones and spacecraft.
- Landing sensors for drones and spacecraft.
- Urban agriculture systems.
- Short-term contract engineering services.

System Engineer	**ExoTerra Resources**	**03/2020 – Current**	**Littleton, CO**

- Spacecraft architecture and system engineering, including electronics, GNC, mechanisms and software.
- SPENVIS radiation analysis.
- GNC mission and disturbance analyzes. Working with a subcontractor on low-energy lunar orbital trajectories.
- Electronics designs associated with electric propulsion systems, single board computers and flight computers.

Staff Aerospace Engineer	**Moon Express**	**01/2014 – 12/2017**	**Mountain View, CA; Orlando, FL**

- OpenGL based software for testing Landing Navigation System (LNS) software.
- Functional prototype of LNS software.
- Drone test bed blending a DJI Matrice 600, custom electronic designs and COTS hardware.
- Benchtop camera test bed for LNS software using COTS hardware.
- Ultra-lightweight design for the flight LNS hardware blending COTS camera, laser, and computer systems with custom mechanical packaging, and power, survival, fault handling and interface electronics.
- Environmental testing of LNS components (thermal, vibration, vacuum, and radiation).
- Design and implementation of in-house custom requirements management tools and engineering database system.
- Avionics system requirements definition, architecture and interfaces for spacecraft and lunar lander systems.
- Generation and execution of test plans for a lunar lander analog hover test vehicle.
- Field test operations for a lunar lander analog hover test vehicle.
- Propulsion test stand instrumentation and data acquisition equipment selection and implementation (FPGA based LabView).
- Design of custom PCB that integrates the prototype avionics system with the bench test and simulation systems.
- Design of microcontroller based custom PCBs for interfacing with different payload systems and for system health monitoring.
- Designed custom PCBs for converting flex harnesses to discrete wire interfaces for different components in the avionics system.
- PCB prototype assembly, PCB rework and harness assembly.

Aerospace Engineer	**Rigel Aerospace**	**10/2012 – 11/2013**	**Centennial, CO**

- Led the design for the RD-180 Engine simulator for United Launch Alliance's System Integration Laboratory as part of the Common Avionics Upgrade initiative.
- Defined the preliminary mechanical design and collaborated with drafters on simulator rack mechanical assemblies.
- Design of electrical systems including rack level connectivity schematics, load simulation board schematics, cable/harness designs and circuit card assembly designs.
- Defined requirements for software/hardware testing interface.
- Supported manufacturing supplier and hardware/software interface groups.
- Contributed to the electrical designs for the Atlas V Active Signal Simulator and Passive Load Simulator racks.
- Defined test requirements and procedures for hardware checkouts of the RD-180, Active and Passive Simulator racks.

System Engineer	**Sierra Nevada Corporation**	**03/2010 – 06/2010**	**Centennial, CO**

- System engineering focused on requirements management for a DoD program.

Product Engineer   **Honeywell Turbo Technologies**   **09/2008 – 03/2010**   **Torrance, CA**
- Collaborated on the design of variable nozzle technology-based turbocharger turbine stages for use in 9-liter diesel engine applications.
- Led the effort to modernize data analysis and visualization techniques and taught other engineers how to use the techniques effectively.
- Collaborated with design and analysis groups to produce mechanical designs that meet internal and customer requirements.
- Hardware build-up for various environmental and mechanical endurance tests designed to verify customer requirements.
- Led documentation of system test, design and analysis information used for verification of customer and internal requirements.
- See Patent No.: US 8,172,508 B2

System Engineer   **Honeywell Defense & Space**   **10/2006 – 09/2008**   **Lakewood, CO**
- Collaborated on SEIT tasks for the Orion Flight Test program with a focus on the Pad Abort 1 and Ascent Abort 1 test flights.
- Assisted the customer in developing system requirements.
- Collaborated with the internal system engineering team to derive component level requirements based on customer requirements.
- Performed analyses to verify component and customer requirements for the Vehicle Management Computer (FT-VMC) and Remote Interface Unit (FT-RIU).
- Defined internal acceleration and thermal environmental requirement testing.
- Led the design of the FT-RIU.
- Defined resource allocations and connectivity for electrical components in the FT-RIU prototype design.
- Led technical interaction with, and requirement definition for the COTS supplier to ensure that flight hardware and special test equipment were correctly designed and implemented, and delivered on time.
- Tested the prototype unit and debugged anomalies/issues during the initial functional checkout test phases.
- Defined thermal test sequences based on experimental data.

Software V&V Engineer   **Analex**   **05/2006 – 09/2006**   **Littleton, CO**
- Validation and verification of Atlas V flight software, focusing on the launch and flight sequences.

Aerospace Engineer   **Pioneer Astronautics**   **05/2003 – 04/2006; 06/2010 – 09/2010**   **Lakewood, CO**
- Designed, built, and wet-tested a controlled underwater glider successfully for the DARPA SeaGlider SBIR Phase 1 program, resulting in award of a Phase 2 contract.
- Designed, fabricated and tested numerous new nitrous oxide monopropellant rocket engines, with thrusts ranging from 1lb – 25 lbs, for NASA and DOD contracts.
- Advised varying projects on thermal design issues, chemical reactor designs, and general engineering issues.
- Trained, advised, and directed new team members on nitrous oxide engine testing methodologies.
- Generated code for evaluating and improving chemical reactor and rocket engine designs based on laboratory test results.
- Designed and implemented data acquisition systems needed to update thermal, chemical reactor, and rocket engine design models.
- See Patent No.: US 8,652,402 B2
- Wrote flight-software, integrated avionics hardware and software, defined test cases, and executed medium altitude balloon test flights.
- Wrote monthly reports for DARPA, published as co-author on 5 NASA and 1 DOD final reports and contributed to numerous proposals.

Intern   **Pioneer Astronautics**   **01/2003-05/2003**   **Lakewood, CO**
- Chemical process testing and analysis.
- Designed and manufactured heat exchangers, chemical reactors, and test stands. Aided project leads in test designs and defining schedules. Aided in defining safety protocols and tests for rocket engines up to 100 lbs thrust.
- Improved data analysis techniques using MATLAB to verify and revise thermal and fluid design models.
- Accelerated the generation and editing of quarterly reports for NASA programs through data analysis automation.

MATLAB Teaching Assistant   **University of Colorado**   **01/2002-05/2002**   **Boulder, Colorado**
- Trained students to use MATLAB/SIMULINK, facilitated technical discussions, and assisted with student evaluation.

Laboratory/Shop Skills and Experience

- Manufacturing: Machining (lathe, mill, CNC router), 3D printing (FDM, SLA), welding (MIG/TIG/Stick), PCB fabrication, assembly and rework.

- Laboratory Test Equipment: Digital multimeters, oscilloscopes, power supplies, signal generators, LabVIEW hardware, and instrumentation (pressure transducers, thermocouples, flow meters, rate gyros, accelerometers, barometers, humidity, GPS).
- Environmental Testing: Acceleration, random vibration, thermal and radiation testing for mechanical and electrical systems.
- Verification Testing: Functional, acceptance and qualification testing for mechanical and electrical systems.
- Procedures: Generation and implementation of scripted test procedures, safety procedures for electronics handling, environmental test procedures, and manufacturing procedures.

Computational Skills

- Programming Languages: C, C++ (preferred), C#, Java, Python (learning)
- Application Programming Interfaces: Qt, OpenGL, CUDA (learning)
- Libraries: OpenCV, ROS (learning), boost (learning)
- Database Systems: MySQL, PostgreSQL, Influx DB (learning)
- Engineering Applications:
  - Currently Proficient: MATLAB, SIMULINK, SolidWorks, Altium, STK, LTSpice
  - Past Proficient: AAA, FineTurbo, DxDesigner, Expedition PCB, DOORS, Eagle, CircuitStudio
  - Novice: ProE, NX, Inventor, Cadence, OpenFoam
- Current Operating Systems:
  - Microsoft: Windows 10, Hyper-V Server 2019, Windows Server Essentials 2016
  - Linux: Ubuntu 18.04 and 20.04 Desktop and Server
  - Apple: macOS Big Sur
- Virtualization: ESXi, Hyper-V
- General Purpose Packages:
  - Microsoft: Word, Excel, Visio, Access and PowerPoint
  - Adobe: Photoshop, Dreamweaver
- Test Equipment: LabVIEW (FPGA)

Engineering Coursework

- Aerospace Propulsion (Jet and Rocket Engines)
- Aerodynamics
- Thermodynamics
- Aircraft Dynamics
- Aircraft Design
- Aerospace Materials
- Statics and Dynamics
- Classical and Modern Control Theory
- Spacecraft Attitude Dynamics and Control
- Orbital Mechanics
- GPS Software

- Aerospace Electronics
- Mechatronics
- Robot Mechanics
- Fundamentals of Programming (C++ & Java)
- Object-Oriented Programming (C++ & Java)
- Data Structures (C++)
- Advanced/Generic/Template Programming (C++)
- Algorithms
- Database System Concepts (SQL)
- Computer Graphics (OpenGL)
- Operating System Concepts