

# Mitch Fletcher

## Chief Engineer & System Architect

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Innovative multi-disciplinary business and technology leader specializing in system engineering and avionics architecture. Award winning product development leadership and execution of multi-discipline systems and products varying from avionics architecture, data management systems, and momentum control systems. In-depth knowledge extends to systems, hardware, software, and test engineering with a proven track record of innovation and on-time schedule and effective cost performance. Over 38 years of expertise in space based systems with demonstrated deployment of fault-tolerance, system architectures, communications protocols, space environments including their special parts and material requirements, along with extensive experience with government and aerospace development processes and requirements. This capability base is supported with demonstrated customer delivery, leadership, and project management experience of both local and global dispersed teams. System architecture and technical design is backed up with a foundation of practical experience and knowledge of production and manufacturing gained from deployment of over 10 unique space deployed systems.

## PROFESSIONAL EXPERIENCE

### Founder and Chief Architect

Arrowhead System Engineering, AZ, 2017–Present

Founded a new startup company that provides consulting and project execution specializing in System Engineering, Avionics Architecture, Data Management Systems, and Momentum Control systems. The company has four decades of expertise in space systems with on-orbit deployment of fault-tolerance, system architectures, communications protocols, space environments special parts & material, along with extensive experience with government & aerospace development processes

### Chief Engineer

Honeywell International, Space Systems, AZ, 2003–2016

Responsible for the ultimate success of all Human Space missions for the corporation. Responsibilities include design authority for platform avionics systems supporting humans in space and technical oversight for over 500 worldwide engineers. This includes Command & Data Handling (C&DH) systems, Guidance Navigation and Control (GN&C), and power systems. The C&DH included flight computers, network communication, IO interface, human interface (displays, input devices, and human factors), health management, sensors, and actuators. The GN&C element includes inertial measurement (IMU) and actuation (surface, jets, CMGs, RWAs).

## MANAGEMENT SKILLS

- **DoDAF Engineering Process**
- **Project Planning**
- **Management of Large System Development concurrent with Research & Development**
- **Technical Sales and Product Development**
- **Strategic Planning & Marketing**
- **Customer Interface for Initial Requirements**
- **Export Control and EAR/ITAR**
- **Production readiness & SIOP**

## TECHNICAL SKILLS

- **Systems Engineering, Systems Engineer, system engineering, technical management**
- **Aerospace Avionics System Architecture**
- **Fault Tolerant Systems**
- **C&DH, GN&C, and Mechanical Systems**
- **Space Requirements development**
- **ARP 4754A Implementation and Verification**
- **Hardware design including ASIC and Multichip Modules (MIL-31534 and MIL-31535)**
- **Requirements management with System Architect, Enterprise Architect, DOORS (including TCL)**
- **Software development including C, C++, HDML, JAVA with DO-178B/C**
- **Space Electrical performance analysis (MIL-STD-975, MIL-1547, DO-240, DO-254) with Mathcad, PSpice, Excel**

Currently deployed systems include the International Space Station (ISS), Space Launch System, Orion, and Atlas Launch Vehicle. In this role, was also responsible for customer and market analysis resulting in strategic planning and implementation. Development and direction of all IR&D projects was also included.

### Sr. Staff Application Engineer

Honeywell Space Systems, AZ, 1999–2003

This role entailed primary engineering interface for the Human Space Enterprise Team to include development and implement of strategic direction. The role also includes creation of customer impression that Honeywell is the correct source of the solution to ongoing development and support of Human Space vehicles. These solutions involve extensive system engineering resulting in system, hardware, and software solutions for avionics, controllers, and related systems. Programs such as Orbiter, Solid Rocket Booster avionics, and Space Station architecture.

### Section Technical Manager/Technical Director

Honeywell Space Systems, AZ, 1991–1999

Assignments in the satellite Momentum Control Department include Engineering Section Head for the Strategic Programs Section in addition to being Technical Director of various programs. These programs include the HR14X, a design to cost effort of Honeywell's constellation class Reaction Wheel Assembly (RWA), architecture development of the VanGogh next generation Control Moment Gyroscope (CMG), development and demonstration of the Magnetically Suspended CMG, commercial CMG implementation programs, and several CMG production programs. The MAG CMG contract was a 10 million dollar effort implementing a magnetic suspension bearing design for use in a high torque CMG. These programs responsibility included technical management, system engineering, and electronics architecture. Another previous assignment was TD of RWA radiation hardened microelectronics development (system design and verification of a RWA that uses miniaturized electronics consisting of a power supply hybrid, a motor driver hybrid, an analog ASIC device, a gate array, and various discrete parts resulting in an 80% reduction in cost).

### Section Technical Manager/Technical Director

Honeywell Space Systems, AZ, 1986–1991

Previous assignments in the manned space Data Management Systems Department include Engineering Section Head for development of all new data and control systems for manned space. This included development of various shuttle control pallets and system studies of the space station configuration. Projects include the SRB EMDM development project, a 24 million dollar contract involving high density electronics, the Orbiter MDM with specific responsibility for hybrids, gate arrays (including the stand-up of the first ASIC development for manned space), and power supplies. Both of these projects complete re-design of a black box controller containing digital, analog, and serial interfaces. Both projects were completed on schedule and within the originally negotiated project budget. Prior assignment included system development using the FMDM. Developed the system architecture that was used in the Enhanced MDM pallet and Hitchhiker pallet for NASA (SPAH Appendix E and F). Complete system emulation was prepared for this project by developing and using the Space test bench, Programmable Modular Test Equipment (PMTE). This emulation actually controlled the EMDM pallet from three user and one system console and provided telemetry to all systems.

### Various Engineering Levels

Sperry Flight Systems (acquired by Honeywell) AZ, 1979–1986

## HIGHLIGHTS

- **Responsible for technical and strategic direction leading to the \$1.2 billion Orion avionics award**
- **Financial responsibility for \$3 million annual IR&D Budget**
- **100% mission success of all hardware and software developed over a 38 year career**
- **Hired and trained more than 50 employees**
- **Cradle to grave Development, qualification, and deployment of the HR-14 constellation RWA, the most successful product within Honeywell Space**

## EDUCATION

- **Bachelor of Engineering (BSEECs) University of New Mexico, 1979**
- **Continuing education includes Digital Avionics Systems, Engineering Design of Systems, Attitude Control System architecture, Space Shuttle Avionics, parallel processing, and VHLD programming in addition to multiple project management courses**

## AWARDS

- **Technical Achievement Award - 2001 for the HR14 RWA, 2004 for OSP Avionics**
- **Outstanding Engineer 1994**
- **Lund Award (management excellence) nominee for 5 consecutive years.**
- **Patent holder of 22 patents, with over 10 pending**
- **Published over 10 papers for journals and conferences**

## OTHER

- **Certified Green Belt for Growth**
- **Prior SCI and DOD Top Secret Clearance (debrief Jan 2017 with departure from Honeywell)**