MICHAEL R. GRABOIS

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SUMMARY

- Highly-skilled, award-winning Training Systems and Simulation Engineer with over 30 years of experience in Safety & Mission Assurance, Spaceflight Training, Mission Operations, and Multi-disciplinary Systems Engineering.
- Expertise in designing, developing, and upgrading complex Astronaut and Flight Controller training systems and simulators, with practical experience applying Human Factors Engineering principles to design, training, and operations in the human spaceflight field.
- Proven ability to lead technical teams, integrate human/machine interfaces (HMI), manage technical projects, and assure mission safety and success for programs including Artemis/Lunar (AxEMU, xEMU), Orion, and Space Shuttle.

CORE SKILLS

Training Systems Development, Human-in-the-Loop Simulations, Operational Procedure Design, Flight Controller & Astronaut Training, Lunar & EVA Systems Familiarity, Mission Operations, Human Factors, Modeling & Simulation, GUI/Display Design, Technical Writing & Documentation, Safety & Mission Assurance, Systems Engineering, Reliability Engineering

PROFESSIONAL EXPERIENCE

Science Applications International Corporation (SAIC), Safety & Mission Assurance Engineering Contract Houston, TX 2018 to present

EVA Safety Operations Engineer, ISS EMU & Exploration EVA Systems, 2018-2025, 2026-present

- Assured the incorporation of EVA Safety requirements into new hardware/payload designs for both ISS EMU and Exploration EMU (xEMU) suits for the Human Lander System lunar vehicles.
- Participated in real-time monitoring and execution of EVAs performed on/outside of the ISS.
- Training Lead: Responsible for certification guide, coordination of new hire training, and lesson development and documentation.

Reliability Engineer, Axiom Lunar Extravehicular Mobility Unit (AxEMU), 2025-2026

- Responsible for developing and maturing Failure Mode and Effects Analyses (FMEA) and System Reliability Models to ensure that the AxEMU lunar spacesuit performs consistently and without failure over its intended lifespan.

United Space Alliance (USA), Houston, TX 1988 to 2011

Training Engineer, Vehicle Systems Division (1995-2011) | Design Engineer, Shuttle Flight Design & Dynamics (1988-1995)

Astronaut and Flight Controller Training & Operations

- Led a team of instructors in designing and implementing a curriculum for training astronauts and flight controllers on Shuttle Life Support, Thermal, Electrical, Mechanical, and Hydraulic systems.
- Certified Space Shuttle flight controllers in launch, orbit, and entry mission operations by creating a variety of failure scenarios in various simulators and evaluating performance against established guidelines.
- Customized instruction using classroom lectures, computer-based trainers, and the creative use of various simulators.
- Created, coordinated, and managed the logistics of the training program for new astronauts as a member of the Astronaut Candidate Working Group for six classes over 10+ years.
- Assisted flight controllers in risk management and in developing pre-flight and real-time trajectory, timeline, requirements, contingency procedures, technical reviews, and other mission planning and analysis products in the Plan/Train/Fly environment.
- Supported numerous orbit simulations as a Shuttle crew member and was certified as part of a cadre of instructors allowed to participate in ascent/entry simulations.
- Certified as a console operator in two different Flight Controller positions, and concurrently trained operators in three other positions for ascent, orbit, rendezvous/docked, and entry phases of flight.

Simulation and Human-Machine Interface (HMI) Development

- Designed electrical and ECLSS cockpit displays for Shuttle and Orion spacecraft and console displays for Mission Control Center (MCC) position.
- Designed and tested new cockpit displays for proposed Shuttle software upgrades (Cockpit Avionics Upgrade project), resulting in a 50% decrease in both crew workload and error rate.
- Provided expertise in crew/hardware interaction during upgrades, assisting with engineering drawings, cockpit switch/display design, and procedure development.
- Authored numerous Support Requirements to upgrade and update Shuttle simulators based on new hardware capabilities, following through design review, testing, verification, and implementation.
- Performed verification and validation of hardware-in-the-loop simulator models during upgrades and load checkouts.
- Revamped, rewrote, and maintained the Shuttle Mission Simulator Systems Console Handbook as book manager for 10+ years.
- Created and maintained training documents for customer-focused technical content over a wide range of subjects including software user guides, crew operation manuals, systems-level hardware overviews, flight procedures rationale handbooks, instruction manuals, study guides, and a Mission Control position console handbook. Maintained house user experience style for documentation in multiple formats.

Flight Design and Systems Engineering

- Created, tested, and verified Space Shuttle ascent software parameters and Mission Control launch processor inputs for aborts and orbit insertion, using 3-DOF and 6-DOF analysis.
- Designed entire set of entry abort burn parameters required for the first rendezvous mission with Russian space station Mir.

General Electric Oil & Gas, Houston, TX 2013 to 2016

Lead Technical Trainer, Global Training, Drilling & Surface

- Hired to help innovate GE's training program with best practices from outside the oil & gas industry.
- Provided technical training on the operations, maintenance, and troubleshooting of oil & gas drilling hardware and surface drilling controls.
- Facilitated practical electrical, hydraulic, communications, and mechanical hands-on exercises in a laboratory environment.
- Created, prototyped, and taught a 5-day classroom lesson on a new surface controls system, guiding students through hardware schematics and laboratory hardware.

SOFTWARE SKILLS & TECHNICAL PROFICIENCIES

- Programming & Scripting: FORTRAN, UNIX, HTML.
- Training & Documentation: Microsoft Sharepoint, Office (Word, Excel, PowerPoint), Wiki.
- Hardware & Systems: Familiar with ECLSS/EPS/TCS spaceflight hardware using technical schematics and drawings.

AWARDS AND HONORS

- NASA Space Flight Awareness (SFA) Award, for dedication to quality work and flight safety.
- United Space Alliance company-wide Employee of the Month Awards for Quality, Teamwork (twice), and Safety; nominated for Leadership.
- Rockwell Sustained Superior Performance Award.
- Numerous NASA Group Achievement Awards.

EDUCATION

- The University of Houston at Clear Lake. Master of Science in Physical Sciences, emphasis on Space Sciences
- The University of Texas at Austin. Bachelor of Science in Aerospace Engineering