

Jason Niebuhr

Summary of Qualifications

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| <ul style="list-style-type: none"> ▪ Aircraft/Spacecraft Hardware Development ▪ Design & Analysis of Aerospace Structures ▪ Mechanism Design & Analysis ▪ Flight Data Instrumentation ▪ Threaded Fasteners | <ul style="list-style-type: none"> ▪ Vibration Isolation ▪ Rapid Prototyping ▪ Integrated Hardware Testing ▪ Large Data Set Analyses ▪ Project and Program Management |
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Experience

Apr 2013 - Present	SAFE Inc.	Monument, CO
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Contract Engineer

- FAR Part 25 stress and FDT engineering services

Sep 2011 - Present	Apogee Engineering, US Air Force Academy	Colorado Springs, CO
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Senior Research Engineer/Program Manager (Center for Aircraft Structural Life Extension)

- Project manager and lead engineer for TG-16 flight data recorder program
 - Developed innovative recorder saving significant cost and schedule
 - Responsible for mechanical and electrical design, software configuration, and integration
 - Coordinated efforts between program office, operations, and maintenance
 - Analyzed data to compare usage to certificated spectrum
- Wrote statements of work and coordinated contracting efforts for over \$2M of research
- Mentored cadet senior design team and experimental methods group

Apr 2010 - Sep 2011	United States Air Force Academy	Colorado Springs, CO
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Program Manager/Senior Research Engineer (Center for Aircraft Structural Life Extension)

- Wrote statements of work and coordinated contracting efforts for over \$10M of research
- Evaluated and rated contractor performance
- Approved \$70K of annual purchases through Government credit card
- Mentored cadet senior design team in development of \$250,000 biaxial testing machine

Aug 2008 - Apr 2010	Goodrich	Colorado Springs, CO
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Project Engineer

- Lead engineer for \$100 million Airbus A350 XWB cabin attendant seat program
 - Directed efforts of 6 local engineers and 3 overseas
 - Primary engineering representative to Airbus
 - Developed sheet metal, machined, carbon composite, plastic, and upholstered hardware
- Released over 250 engineering change orders in 8 months for Airbus Single Aisle program
- Evaluated and dispositioned discrepant parts
- Consulted on development of Goodrich Interiors' standard hardware plan

Jun 2001 - Dec 2007	NASA – Johnson Space Center	Houston, TX
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Aerospace Engineer – Projects Development Branch

- Co-developed the Advanced Resistive Exercise Device (ARED), US Patent 7,462,141, a zero-gravity strength training machine on the International Space Station (ISS) since November 2008
 - First on-orbit exercise equipment to simulate free weight load profile and acquire force data during workouts
 - Increased load capability by 250% and maintenance interval from 6 months to 15 years compared to the previous on-orbit exercise device
- Developed Vibration Isolation System (VIS) for ARED to minimize transmission of interface loads and prevent resonance with ISS structural modes

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<ul style="list-style-type: none"> ○ Proposed and implemented software prototyping approach, drastically cutting costs and design cycle duration versus prior trial and error methods ○ Demonstrated viability of passive isolation system through analysis and visualization of performance - saving significant cost, complexity, and ISS power rations ○ Coded routines to evaluate performance for instant feedback instead waiting of weeks for a traditional coupled loads analyses cycle ○ Achieved rare flight certification by analysis ▪ Led VIS flight hardware acceptance test programs <ul style="list-style-type: none"> ○ Cut cost of a shock absorber test by 90% and lead time by 4 months by redesigning test ○ Used results to improve and validate software models for certification ▪ Managed rapid prototyping laboratory serving all of Johnson Space Center <ul style="list-style-type: none"> ○ Increased rapid prototyping throughput by 40-90% each year for 3 years, then directed \$400,000 equipment and facilities upgrade ○ Built models for the Columbia Accident Investigation Board, Space Shuttle Atlantis, the Aerospace Mechanisms Symposium, and fit checks for various ISS hardware 		
Jun 2001 - Dec 2007	NASA – Johnson Space Center	Houston, TX
<p>Aerospace Engineer – Projects Development Branch</p> <ul style="list-style-type: none"> ▪ Co-developed the Advanced Resistive Exercise Device (ARED), US Patent 7,462,141, a zero-gravity strength training machine on the International Space Station (ISS) since November 2008 <ul style="list-style-type: none"> ○ First on-orbit exercise equipment to simulate free weight load profile and acquire force data during workouts ○ Increased load capability by 250% and maintenance interval from 6 months to 15 years compared to the previous on-orbit exercise device ▪ Developed Vibration Isolation System (VIS) for ARED to minimize transmission of interface loads and prevent resonance with ISS structural modes <ul style="list-style-type: none"> ○ Proposed and implemented software prototyping approach, drastically cutting costs and design cycle duration versus prior trial and error methods ○ Demonstrated viability of passive isolation system through analysis and visualization of performance - saving significant cost, complexity, and ISS power rations ○ Coded routines to evaluate performance for instant feedback instead waiting of weeks for a traditional coupled loads analyses cycle ○ Achieved rare flight certification by analysis ▪ Led VIS flight hardware acceptance test programs <ul style="list-style-type: none"> ○ Cut cost of a shock absorber test by 90% and lead time by 4 months by redesigning test ○ Used results to improve and validate software models for certification ▪ Managed rapid prototyping laboratory serving all of Johnson Space Center <ul style="list-style-type: none"> ○ Increased rapid prototyping throughput by 40-90% each year for 3 years, then directed \$400,000 equipment and facilities upgrade ○ Built models for the Columbia Accident Investigation Board, Space Shuttle Atlantis, the Aerospace Mechanisms Symposium, and fit checks for various ISS hardware 		
Jan-May & Aug-Dec 2000	NASA – Johnson Space Center	Houston, TX
<p>Aerospace Engineer – Mechanical Design and Analysis Branch</p> <ul style="list-style-type: none"> ▪ Designed and analyzed hardware for static structural test of the X-38 Crew Return Vehicle <ul style="list-style-type: none"> ○ Created part and assembly drawings, selected fasteners, and generated bills of material ○ Performed structural analysis, selected materials and heat treatments ○ Resolved manufacturability issues 		
May 1999 - Aug 1999	NASA – Johnson Space Center	Houston, TX
<p>Materials Engineer – Materials and Process Branch</p> <ul style="list-style-type: none"> ▪ Tested composite samples to create material allowables for X-38 aeroshell panels ▪ Researched, produced, and tested carbon nanotube composite specimens ▪ Maintained database tracking material outgassing properties for the ISS 		

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May 1997 - Aug 1997	Raytheon Aircraft	Wichita, KS
Engineering Intern – CO Incorporation Group		
<ul style="list-style-type: none"> ▪ Digital conversion of legacy engineering specifications for Beechcraft King Air 		
Education		
May 2001	Wichita State University	Wichita, KS
BS – Aerospace Engineering - Magna Cum Laude		
Awards		
JSC Director’s Innovation Group Achievement Award, 2009 NASA Tech Brief Award, 2005 NASA Flag Award, 2000 NASA GEM Award, 2000		
Publications		
<u>Conference Proceedings</u>		
<ul style="list-style-type: none"> ▪ Niebuhr, Jason and Hagen, Richard (2012), “Development of the Vibration Isolation System for the Advanced Resistive Exercise Device”, Proceedings of the 41st Aerospace Mechanisms Symposium, Pasadena, CA. 		
Patents		
Raboin, Jasen, Chris Lamoreaux, Jason Niebuhr, and Santana Cruz. 2008. Advanced resistive exercise device. U.S. Patent 7,462,141, filed January 6, 2005, and issued December 9, 2008.		