

# Lena Elizabeth DeSantis

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## SKILLS

- Developing and assisting in implementing human factors engineering criteria
- Biomechanics data collection and analysis
- Project management and supervision
- Procedure development
- Strong computer skills
- Capable communicator, confident and knowledgeable leader and team player, strong problem solver with ability to focus on detail oriented challenges, self-motivated and dedicated to job excellence.

## EDUCATION

- Masters of Science in Biomedical Engineering, University of Iowa, December 1998
- Bachelors of Science in Bioengineering, Texas A&M University, August 1997

## AWARDS

- 2012 – Award for Outstanding Contributions to NASA’s Human Research Program
- 2011 – NASA Ames Honor Award, Ultrasound 2 Project Team
- 2011 – Wyle Bioastronautics Bravo Award, Adjustable Mock-up Team
- 2011 – Lockheed Martin Team Award, Adjustable Mock-Up for Integrated Vehicle, Seat, and Suit Evaluations Team
- 2010 – Lockheed Martin Spot Award, Joint Orion NBL EVA Mock-up Evaluation Team
- 2009 – Lockheed Martin Team Award, Usability Testing and Analysis Facility 6S Event
- 2007 – SLSD Special Spaceflight Achievement Award, High Rate Dosimeter Certification Team
- 2006 – NASA Group Achievement Award, Research and Technology Studies (RATS) 2006 Team
- 2005 – SLSD Special Professional Achievement Award, NASA-STD-3000 Human System Integration Standard for Crew Exploration Vehicle
- 2005 – University of Michigan Human Factors Engineering short course
- 2004 – Lockheed Martin Lightning Award, Crew Restraint Technology Development Project Team
- 2002 – Johnson Space Center Group Achievement Award, International Space Station (ISS) Plug-in Plan Group
- 2001 – ISS 7A Plaque hanging ceremony in ISS Flight Control Room

## EXPERIENCE

Lockheed Martin Corp.  
Houston, TX

Sr. Human Factors Engineer, Usability Testing & Analysis Facility (UTAF)  
April 2003 to Present

- Integrated Human Factors Evaluation Process Lead for International Space Station (ISS) Payload Hardware (2006 to present) including verification of human factors requirements for ISS payload hardware, providing recommendations for hardware design changes to comply with requirements, and providing recommendations to improve the usability of the hardware
- Project Lead & Cost Account Manager (CAM) for UTAF Constellation Extravehicular Activity (EVA) human in the loop evaluations (supervised up to 3 employees)
- Coordinator for the Human Research Program (HRPs) Planning, Programming, Budgeting, and Execution activities
- Developer/administrator for the HRP Management SharePoint site

- Baseline Operational Readiness (BOR) lead for the UTAF including equipment tracking, yearly inventory of equipment, and scheduling and coordinating software and hardware upgrades

Johnson Engineering  
Houston, TX

Human Factors Engineer (UTAF)  
October 2002 to April 2003

- Procedure format development for the Emergency Medical Procedures Project
- Assisted with pilot testing and qualitative data analysis on the Emergency Medical Procedures Project
- Assisted with the Magic Windows project, researched crew daily activities using an on-orbit schedule and procedure viewing tool

Johnson Engineering  
Houston, TX

ISS Plug-in Plan (IPiP) Engineer  
April 2001 to October 2002

- Generated pre-flight plug-in plans, both nominal and contingency, and posted to the IPiP web page
- Coordinated plans with Cargo Integration Office (CIO), Crew Health Care System, Human Research Facility, Marshall Spaceflight Center, and Electrical Power Team
- Presented plans to flight specific Joint Operations Panel and Increment Management Team
- Crew training on plug-in plan beginning with Expedition 3 through Expedition 6; created training materials specific to each Expedition, trained the crewmembers on their specific plug-in plan

Johnson Engineering  
Houston, TX

ISS Trash Management Support  
October 2000 to April 2001

- Assisted in baselining Management Plan for Waste Collection and Disposal (SSP 50481)
- Generated and maintained the Trash Assessment Spreadsheet
- Assisted in updating the Trash/Waste Hardware Catalog
- Assisted with the weekly telecons with International Partners (IPs)

Johnson Engineering  
Houston, TX

Human Factors Engineer, Anthropometry and Biomechanics Facility (ABF)  
December 1999 to October 2000

- Project lead to return LIDO WorkSET dynamometer to operational readiness
- Assisted in biomechanical assessment of human performance in partial gravity and 1-g
- Obtained anthropometry and maximal isolated joint strength measurements on Astronaut Candidates utilizing goniometer and LIDOACT software

UroSurge, Inc  
Coralville, IA

Engineering Associate  
August 1997 to December 1998

- Design and fabrication of empirical model for Master's thesis research
- Acquisition and reduction of empirical data for Master's thesis, including analysis of variance (ANOVA) statistical analysis utilizing Statistica software
- Designed and fabricated flow measurement device and determined test method for collection of flow measurement data for 510(k) approval of SpiraStent

Lockheed Martin  
Houston, TX

Cooperative Education Student  
January 1995 to August 1996

- Utilized both LabVIEW and APAS systems for the acquisition and reduction of biomechanical data for experiments performed on the KC-135 Zero-Gravity Aircraft, in the Weightless Environment Training Facility, and in the Thermal Vacuum Chamber
- Obtained anthropometry and maximal isolated joint strength measurements on Astronaut Candidates utilizing a goniometer and LidoACT software
- Coordinated the test procedure for a project to measure the maximal isolated joint strength of Extravehicular Activity (EVA) suited and unsuited test subjects – project co-lead
- Conducted FMEA stress analysis of hydraulic lift utilized in EVA suited and unsuited isolated joint strength measurements
- Participated in research and development EVA tool meetings, including presentation and evaluation of biomechanical data

Bell Helicopter  
Fort Worth, TX

Summer Intern  
June 1991 – August 1993

- Chemical Process Control Laboratory
- Mechanical Testing Facility
- Materials and Process Control Laboratory