

Jacobs
Space Exploration Group



Jacobs Early Career Development: We Want You to Dream Big

Why Jacobs?

- <https://www.youtube.com/watch?v=4yN5cj-mMQc>

Life at Jacobs

You have purpose. And at Jacobs, you can live it. No matter what drives you, you'll discover how you can cultivate, nurture and achieve your goals all at a single global company.

■ We do things right.

We always act with integrity – taking responsibility for our work, caring for our people and staying focused on safety and sustainability. We make investments in our clients, people and communities, so we can grow together.

■ We challenge the accepted.

We know that to create a better future, we must ask the difficult questions. We always stay curious and are not afraid to try new things.

■ We aim higher.

We do not settle – always looking beyond to raise the bar and deliver with excellence. We are committed to our clients by bringing innovative solutions that lead to profitable growth and shared success.

■ We live inclusion.

We put people at the heart of our business. We have an unparalleled focus on inclusion with a diverse team of visionaries, thinkers and doers. We embrace all perspectives, collaborating to make a positive impact.

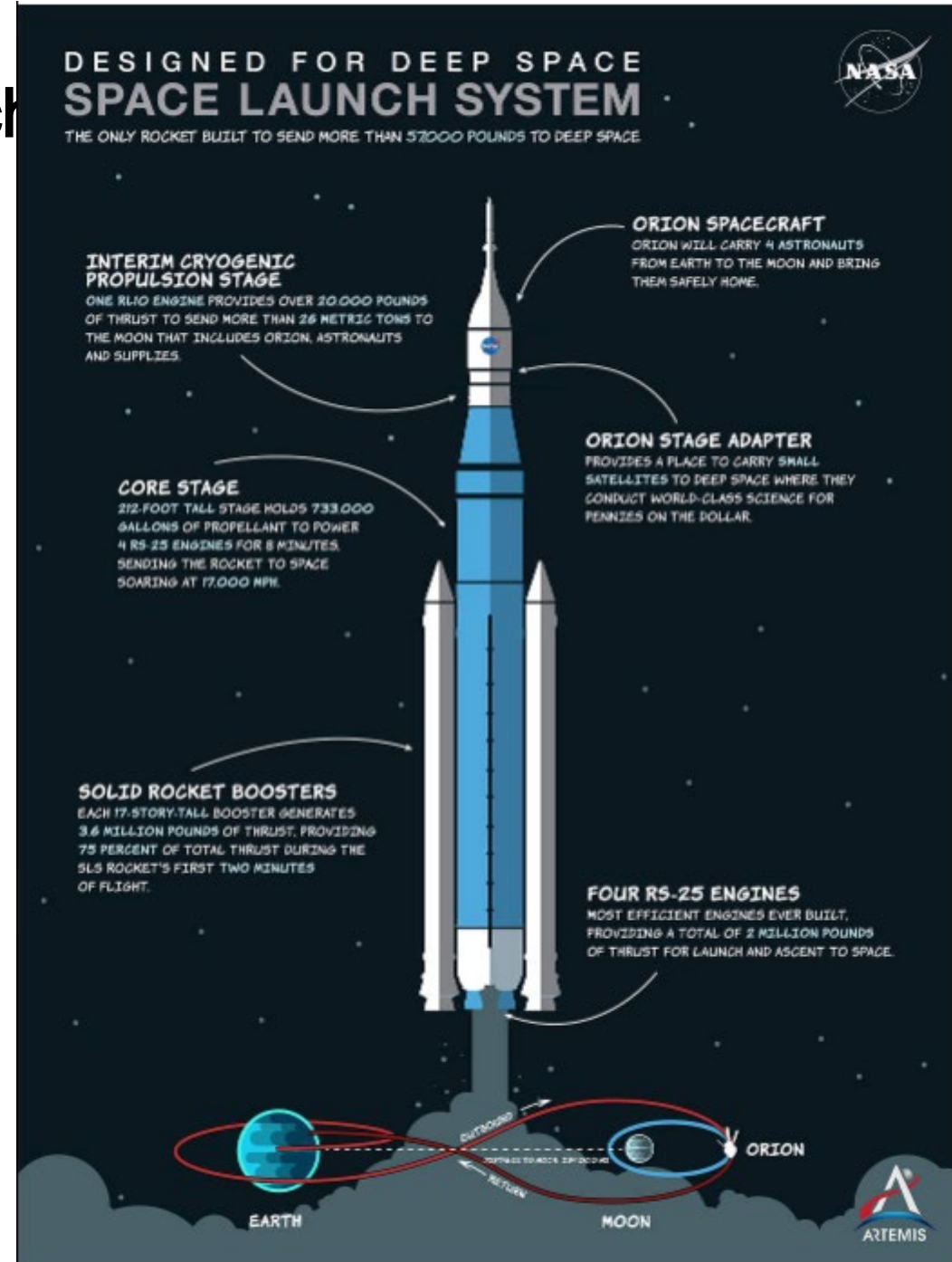
We Live Inclusion



- At Jacobs, inclusion powers our collective strength. We believe our differences can broaden perspectives, our connections build confidence, and our collaboration inspires growth.
- As part of our Culture of Caring, we unite employees across the globe to foster these differences and amplify each voice through our employee networks. Discover the employee led and employee organized groups that speak to you. Together, we accomplish more than we ever could alone.

You Could be Working on the Space Launch Systems (SLS)

- Powered by four RS-25 engines and twin solid rocket boosters, NASA's Space Launch System (SLS) rocket produces **8.8 million pounds of thrust** to propel the agency's Artemis missions to the Moon.
- Offering more payload mass, volume capability and energy to speed missions through deep space, the SLS rocket is designed to be both flexible and evolvable to enable a variety of missions, including landing the first woman and the next man on the **Moon by 2024**.
- SLS, along with NASA's Gateway in lunar orbit and the Orion spacecraft, is NASA's backbone for NASA's deep space exploration. **It is the only rocket that can send Orion, astronauts and supplies beyond Earth's orbit to the Moon on a single mission.**



Or Human Landing Systems (HLS)

- HLS features offer support for lunar surface extra-vehicle activities (EVA) and global lunar surface access
- The HLS will meet scientific requirements for lunar discovery and exploration by offering favorable vantage point for Earth, sun and deep space observations
- The HLS will prove technologies that enable Lunar missions and feed forward to Mars and other deep space destinations.



Or Even the International Space Station (ISS)

- The station serves as a microgravity and space environment research laboratory in which scientific research is conducted in astrobiology, astronomy, meteorology, physics, and other fields.
- The ISS is suited for testing the spacecraft systems and equipment required for possible future long -duration missions to the Moon and Mars
- The ISS provides a platform to conduct scientific research, with power, data, cooling, and crew available to support experiments. Small uncrewed spacecraft can also provide platforms for experiments, especially those involving zero gravity and exposure to space, but space stations offer a long-term environment where studies can be performed potentially for decades, combined with ready access by human researchers



What Your Degree Can Do for You

- **Aeronautical/Aerospace Engineer:** design, development, construction, testing, and operation of vehicles operating in the Earth's atmosphere or in outer space
 - **Data Process/Analyst Engineer:** supercomputer simulations that can help conduct research with less time and expense. Engineers are needed to process the data collected in these simulations and determine how to use it to deploy new solutions
 - **Design Engineer:** work on products and systems that involve adapting and using complex scientific and mathematical techniques. The emphasis tends to be on utilizing engineering physics and sciences to develop solutions
 - **Electrical Engineer:** determine the risks due to solar storms to the shuttle, International Space Station and crews, and make recommendations that would ensure the safety of the shuttle, ISS and crews.
 - **Hardware Engineer:** design, build, and test the latest computer and electronics hardware
 - **Instrumentation Engineer :** measuring instruments that are used for indicating, measuring and recording physical quantities such as flow, temperature, level, distance, angle, or pressure
 - **Mechanical Engineer:** design and research potential advances, whether they are large engines or tiny sensors, to develop new and better aerospace technologies for current and future needs
 - **Payload Specialist:** help with data collection, experimentation, and other work critical to a space mission. Payload specialists accompany a piece of equipment in order to properly install or use it in the mission
 - **Software Engineer:** design, develop and maintain software systems including operating systems, business applications, mobile and web applications, connected hardware devices, networking systems
 - **Systems Engineer:** focuses on how to design and manage complex systems over their life cycles
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Jacobs Systems Engineering (SE) Fellows Program with the UAH

Jacobs/UAH SE Fellows Program

- Graduate student pursuing a MS
- Appointment is for a 12 -month period
- For the Summer semester, Jacobs will offer the UAH SE Fellow direct employment to the for about 14 weeks of full - time employment [internship]
- For the Fall and Spring semesters, Jacobs will offer part time employment (10 to 20 hours/week) along with a monetary stipend

SE Capability Areas

- Technical Management and Processes
- Requirements, Interface Definition, Verification
- Assembly, Integration and Test
- System Analysis/Modeling and Simulation
- Operations and Integrated Logistics
- Mass Properties and Weight Management
- System Supportability Analysis and Model Fabrication
- MBSE

Benefits

- Gain practical experience in their technical fields
- Serve the national interest by developing new technologies and solutions to problems of interest while working at NASA

Opportunities to use Tools/software/models

- DOORS, DOORS NextGen, Cradle
- MagicDraw
- Matlab
- Creo
- A variety of CFD analysis tools
- Labview

Department Overviews

Propulsion Systems

Propulsion Systems

The Mission of Propulsion Systems is to enable human exploration and habitation beyond low earth orbit by providing propulsion products, expertise, and solutions for our customers, fostering technical advancements and innovation to enable missions.

We provide: Test Support, Operations Support, Requirements Definition/Verification/Validation, Simulations, Modeling, Analysis, Design Certification, Contractor Insight/Oversight

- Programs Supported
 - Space Launch System
 - Commercial Crew Program
 - Space Nuclear Propulsion
 - Human Lander Systems
 - Mars Ascent Vehicle
 - Lunar Flashlight

Tools/Software/Models Used

WinPlot	Matlab
Python	Fortran
SysML	DOORS
Gitlab	MagicDraw
SharePoint	Atlassian
MBSE	VBA
MSFC-developed Models and Tools	



Spacecraft and Vehicle Systems Department

Spacecraft and Vehicle Systems Department

Capabilities

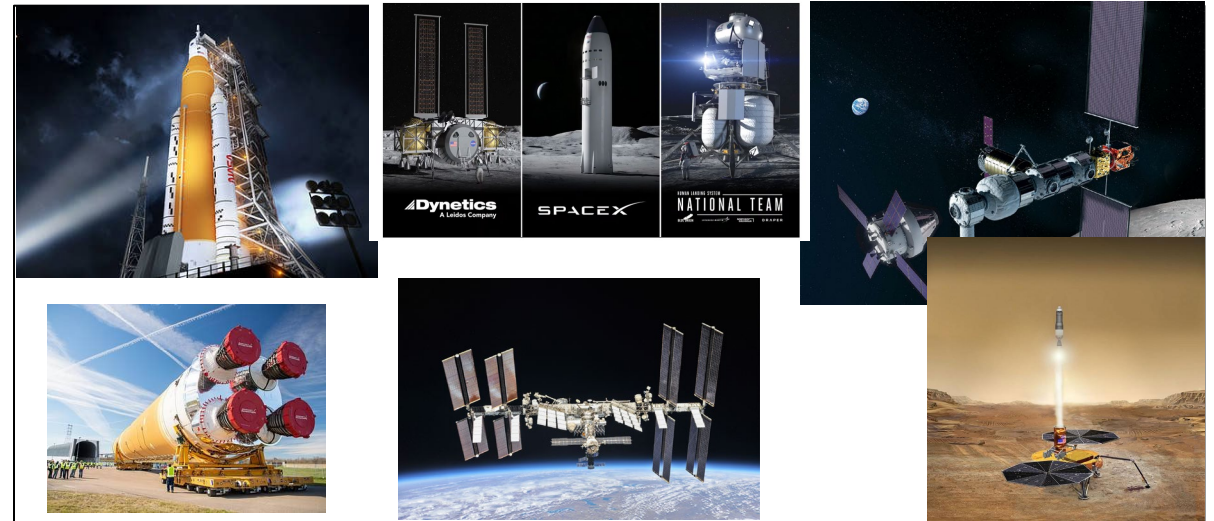
- Flight Mechanics and GNC
- Structures and Environments Design and Analysis
- Lifecycle Systems Engineering support
- SE Capabilities
 - Technical Management and Processes
 - Requirements, Interface Definition, Verification
 - Assembly, Integration and Test
 - System Analysis/Modeling and Simulation
 - Operations and Integrated Logistics
 - Mass Properties and Weight Management
 - System Supportability Analysis and Model Fabrication
 - MBSE

Tools/software/models used

- DOORS, DOORS NextGen, Cradle
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Programs

- Space Launch System
 - Integrated Vehicle
 - Core Stage and Exploration Upper Stage
 - Booster
 - Spacecraft/ Payload Integration and Evolution
- Human Landing System
- Gateway Habitat
- Mars Ascent Vehicle
- Environmental Control Logistics for Space Station



Create a Candidate Profile and Apply

Welcome to the Jacobs Space Exploration Group



HOME CAREER OPPORTUNITIES INTERN PROGRAM ▾ SPACE TECH CHALLENGE ▾ GALLERY CONTACT US

Apply online at <https://jseg.space/>

- Select **Sign In** to create profile
- Select **Accept Agreement**
- Select **New User**
- **Create** username and password
- Remember to select the option to **receive job alerts**

