 Space
Center
Houston

CONRAD
CHALLENGE

2023-2024 Student Guide



[CLICK TO WATCH OUR HIGHLIGHT VIDEO](#)

WHEN IT COMES TO INNOVATION, WHO NEEDS A BOX? It is commonly believed there are two fundamental ways to think: inside the box and outside the box. At the Conrad Challenge, we encourage you to think freely, like there is no box at all.

The Conrad Challenge is an annual innovation and entrepreneurship competition for students ages 13-18 that equips young minds like yours to change the world. You'll form a team of 2-5 and compete with other student teams from around the globe to create innovations that address some of the most pressing scientific and societal challenges through creativity and critical thinking.

The Conrad Challenge isn't a science fair. Unlike any STEM competition out there, this innovation challenge is creating the next generation of entrepreneurs who are going to design a more sustainable future for us all.

SO...ARE YOU READY TO GROW PAST THE TITLE OF "STUDENT" AND BECOME AN "INNOVATOR?"

CHALLENGE OVERVIEW



1 ACTIVATION STAGE | NOV 3, 2023

GATHER YOUR TEAM

Welcome to the Conrad Challenge! Kick off your entrepreneurial journey by registering your teammates and coach. Gathering the right squad is one of the chief ingredients of successful Conrad teams.

2 LEAN CANVAS STAGE | NOV 3, 2023

BRAINSTORM & SELECT INNOVATION

It's time to brainstorm! Complete several "lean canvases" to vet different ideas among Challenge categories. Select one innovation to focus on and take an important step toward bringing your innovation to life.

3 INNOVATION STAGE | JAN 12, 2024

DEVELOP INNOVATION & BUSINESS PLAN

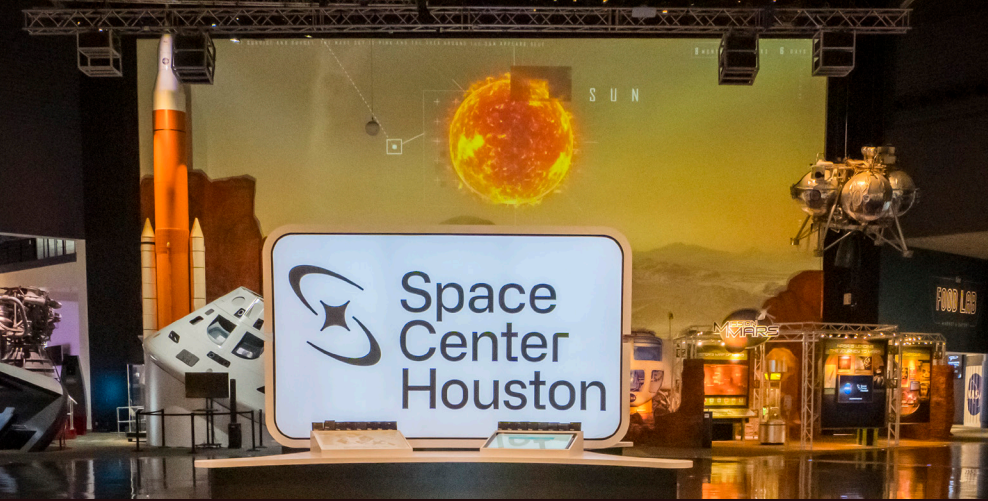
Now let's work out the details! Share your innovation, its impact, marketing and economics in your Innovation Brief, Innovation Video and Website. Teams that complete these requirements will be named Conrad Innovators and receive valuable feedback from our esteemed Judges. Top scoring teams will go on to become Finalists. Both titles qualify for scholarships and other perks.

4 POWER PITCH STAGE | APR 23-26, 2024

PRESENT AT THE INNOVATION SUMMIT

At the Conrad Challenge Innovation Summit, Finalist teams will deliver their Power Pitches to expert Judges and receive live feedback as they compete to qualify for additional scholarships and the Challenge's top honor, the title of Pete Conrad Scholar. They'll enjoy workshops and tours and connect with speakers, experts and students from around the world.

WE ARE HERE TO SUPPORT YOUR JOURNEY. FOR QUESTIONS, EMAIL US AT INFO@CONRADCHALLENGE.ORG



BIG NEWS!

The Conrad Challenge will officially become one of Space Center Houston's educational programs in the 2024-2025 competition year. During this Challenge year, you'll hear more about how Space Center Houston will help bring the Challenge to new heights in the years to come!

"Space Center Houston is honored to carry the torch forward with the Conrad Challenge in partnership with the Conrad Foundation." - William T. Harris, CEO and President of Space Center Houston



ACTIVATION STAGE: OVERVIEW

IT ALL STARTS HERE. Embark on your journey to collaborate, to innovate, and to change the world.

STEP 1: GATHER YOUR CREW

- Create a team of 2-5 students. Invite students from other schools, cities, states or even countries to collaborate without borders. Having the right team members is a key ingredient for our successful teams.
- Recruit a coach. This can be a teacher, parent, subject-matter expert or other qualified mentor over the age of 18.

STEP 2: REGISTER YOUR TEAM

All of your team members and your coach must register through our [Conrad Portal](#) under **one account**. As part of registration, you and your legal guardian must review this Student Guide, [Rules and Regulations](#) and [Terms and Conditions](#) which apply to all participants.

**CLICK HERE TO ACCESS THE CONRAD PORTAL:
[HTTPS://CONRADCHALLENGE.AWARDSPLATFORM.COM/](https://conradchallenge.awardsplatform.com/)**

ACTIVATION STAGE: GUIDANCE

PUT YOUR BEST FOOT FORWARD IN THIS STAGE WITH ADVICE FROM OUR JUDGES, ALUMNI AND LEADERSHIP!



If you love what you do, then you will find triumph while aiding humanity. Let your discoveries be solutions to our earthly enigmas and challenges in space. Think about and serve humanity first, and you will find success!

Antoine Tannous, Judge



Working on a project with somebody you're close to has its own set of challenges, so it's important to set boundaries and collaborate professionally with your teammates.

Laalitya Acharya, Conrad '22



In today's world, diversity means a lot of different things to a lot of people. For me, when assembling a new Conrad team, it's very important to have a team of people who think differently about how to solve problems.

Regina Schofield, Judge & Board Member

[CLICK HERE](#) TO ACCESS OUR STUDENT RESOURCES LIBRARY

ACTIVATION STAGE: SUBMISSION CHECKLIST

DO YOU HAVE QUESTIONS? EMAIL US AT
INFO@CONRADCHALLENGE.ORG

[CLICK HERE TO WATCH WALKTHROUGH VIDEO](#)



Did You...

Ensure all team members and their legal guardians read the [Rules and Regulations, Terms and Conditions](#) to confirm that you meet the eligibility requirements?

What's Next?

Your team is free to move on to the Lean Canvas Stage - Continue to the next "tab" in your portal.

Did You...

Confirm your coach selection and hold a team discussion on goals, team member roles, and communication plans?

Did You...

Complete the Getting Started and Activation Stage tabs in the [Conrad Portal](#) and double check that you've registered all of your teammates and your coach?

DEADLINE:
NOV 3, 2023 BY 11:59 PM ET

[CLICK SAVE AND NEXT](#)

LEAN CANVAS STAGE: OVERVIEW

PLAN IT OUT NOW.

In this stage, you'll brainstorm ideas, select your innovation, lay out the details and take an invaluable first step on your entrepreneurial journey.

STEP 1: IDEATE

Partner with your teammates to brainstorm different challenges and explore innovative solutions. You'll find some great resources on how to come up with viable ideas in our [Student Resources Library](#).

STEP 2: COMPLETE YOUR LEAN CANVAS

A Lean Canvas is a widely adopted tool used by founders to quickly map out the fundamentals of a new venture while in the early stages of the idea. In the Lean Canvas, you'll share your early thoughts to 12 questions that outline your innovation, your market and your business model. Keep it brief: you're limited to a maximum of 40 words for most questions.

STEP 3: CHOOSE YOUR NAME AND CATEGORY

You'll now finalize a name for your innovation and a Challenge category in your Conrad Portal. If your team has changed its name since the Activation Stage, please go back to the "Getting Started" tab and revise it. Your name should be the same in both tabs.

**SUBMIT ALL ACTIVATION
AND LEAN CANVAS ITEMS BY
NOVEMBER 3, 2023, 11:59 PM ET**

Since we approve submissions on a rolling basis, we encourage you to submit your project as soon as you're ready. The sooner you submit, the sooner we can advance your team to the Innovation Stage and you can utilize the extra time to prepare for your Innovation Stage submission. We will review your Lean Canvas and let you know if your team can move ahead to the Innovation Stage within 5 business days of your submission.

THERE IS NO ENTRY FEE FOR THIS STAGE!



Did you know... The Conrad Challenge's namesake, Pete Conrad, became the third man to walk on the Moon during Apollo 12? Famously, Pete's first words were, "Whoopee! Man, that may have been a small one for Neil, but that's a long one for me."

LEAN CANVAS STAGE: THE 12 QUESTIONS

In your Lean Canvas, you'll briefly answer 12 essential questions about your innovation, your market and your business model. Get your team fired up and start making several lean canvases... which idea stands out the most?

Problem

What is the customer need your innovation will address? Is there a social or environmental challenge you aim to take on?

(40 words)

Existing Alternatives

How is this problem solved today? Consider other products in the market.

(40 words)

Solution

What are the key characteristics of your innovation?

(40 words)

Key Metrics

What are the most important numbers that track your success?

(40 words)

Unique Value Proposition

What makes your innovation different from what's already in the market?

(40 words)

High-Level Concept

What is the tagline of your innovation?

(10 words or less)

Sustainable Advantage

Why will it be difficult for others to copy you?

(40 words)

Channels

How will you sell your innovation to your customers? How will you deliver it?

(40 words)

Customer Segments

Who is the target audience that is served by your innovation? Describe them.

(40 words)

Early Adopters

Who will be your very first customers? Describe them.

(40 words)

Cost Structure

What are your most significant costs?

(40 words)

Revenue Streams

How will you make money to fund your operations on an ongoing basis?

(40 words)

LEAN CANVAS STAGE: CHALLENGE CATEGORIES

Choose your favorite Lean Canvas, and pick the category that best fits your innovation.



AEROSPACE & AVIATION

Student solutions have included – improving storage efficiency onboard the International Space Station and warehouses via sustainable RFID technology; an autonomous magnetic take off and landing system



HEALTH & NUTRITION

Student solutions have included – a cloud-based web and mobile app that generates insights about cancer mutations from biomedical literature; a nutrition bar used as a meal supplement for astronauts



DELLTechnologies

CYBER-TECHNOLOGY & SECURITY

Student solutions have included – a mini-blackbox allowing people to access high-performance computing in harsh environments



ENERGY & ENVIRONMENT

Student solutions have included – a low-cost portable water filtration system to help people in underserved areas; an unmanned surface vehicle (USV) to regularly monitor the water quality of lakes and ponds



[CLICK HERE TO LEARN MORE ABOUT CHALLENGE CATEGORY OPTIONS](#)

LEAN CANVAS STAGE: GUIDANCE

PUT YOUR BEST FOOT FORWARD IN THIS STAGE WITH ADVICE FROM OUR JUDGES, ALUMNI AND LEADERSHIP!



It is a good idea to have each member of your Conrad team complete an initial Lean Canvas independently. I bet you will have a productive discussion that will lead the team to all have ownership and a better understanding of the project.

Dr. Myra Halpin, Judge & Director of Teacher PD



Great innovations are not created in a vacuum. Leverage your network as a sounding board to accelerate the development of your overall thesis, your go to market strategies, your financial models and your pitch articulating your venture.

Nick Costides, Conrad Foundation, Board President



I find that the problems I'm most passionate about are problems that address a situation in my community. It helps to envision what the ideal world around you would look like and tackle the situations preventing it from becoming a reality.

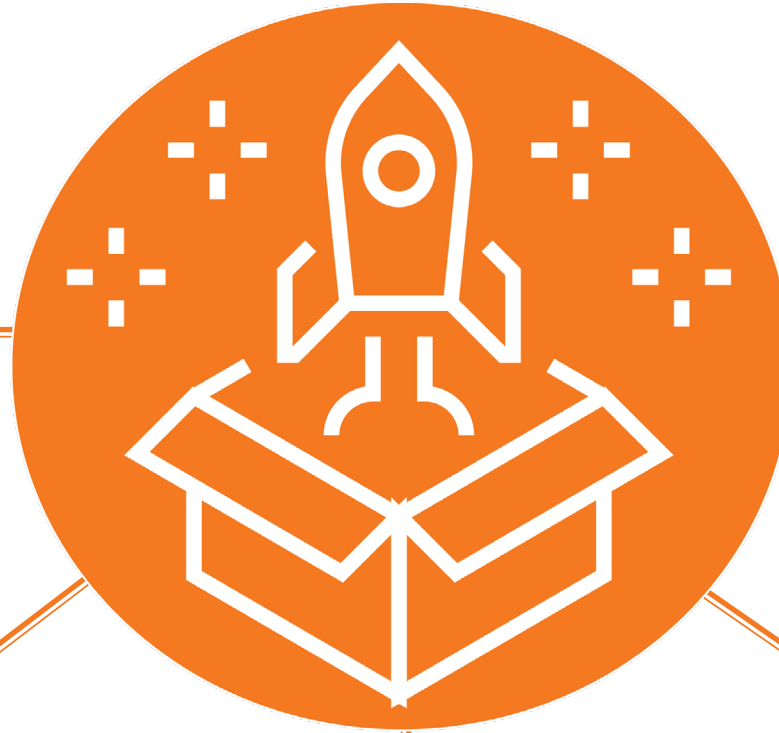
Afolabi Williams, Conrad '18

[CLICK HERE](#) TO ACCESS OUR STUDENT RESOURCES LIBRARY

LEAN CANVAS STAGE: SUBMISSION CHECKLIST

DO YOU HAVE QUESTIONS? EMAIL US AT
INFO@CONRADCHALLENGE.ORG

[CLICK HERE TO WATCH WALKTHROUGH VIDEO](#)



Did You...

Generate a catchy/creative name for your innovation? This will become your official team name for the remainder of the Challenge. Be sure to update it in the Getting Started tab too.

What's Next?

Your Lean Canvas will be reviewed for completeness and feasibility within 5 business days. While you wait, feel free to begin designing your innovation!

Did You...

Choose the Challenge category that fits your innovation best?

Did You...

Complete the Lean Canvas Stage in your team's Conrad Portal, ensuring you've answered each of the 12 Lean Canvas questions within the word limit?

DEADLINE:
NOV 3, 2023 BY 11:59 PM ET

INNOVATION STAGE: OVERVIEW

BRING IT TO LIFE

This is where you will begin designing, creating and telling us your plan for success!

STEP 1: WRITE YOUR INNOVATION BRIEF

The Innovation Brief is the most important submission item reviewed by the Judges in the Innovation Stage. You'll answer 10 essential questions that will tell your story, describe your innovation and its impact, detail your progress, explain your market and propose your business model.

STEP 2: COMPLETE YOUR INNOVATION VIDEO

Your Innovation Video is a 3-minute demonstration of your innovation. In the video, you'll give us a tour of an Innovation Model. You may use sketches, 3D models, storyboards, wireframes, physical prototypes or any other visual artifact to achieve this.

STEP 3: CREATE YOUR WEBSITE

All teams must create a website that describes your team, innovation and intended impact to the general public.

**SUBMIT AND COMPLETE PAYMENT BY
JANUARY 12, 2024, 11:59 PM ET**

ENTRY FEE IS \$499 USD

(Discounts are offered to teams who have financial constraints. Please email info@conradchallenge.org)

Once you submit, a group of judges will score your submission in the [Conrad Portal](#) according to the Scoring Guide and provide your team with feedback for your innovation. We will release judge feedback and announce Conrad Innovator and Finalist teams in February 2024!



Did you know... Blue Origin teamed up with the Conrad Challenge in commemoration of the 50th anniversary of the Moon landing to create the Moonwalker Capsule, which digitally housed hundreds of Conrad student projects. This memory disk flew to space aboard the New Shepard rocket and is currently at the Museum of Flight in Seattle with Pete Conrad's collection of memorabilia.

INNOVATION STAGE: BRIEF

Here, you'll share concise explanations about your story, innovation, progress, market and business model. Combined, the brief is a maximum of 3,000 words, so you'll need to be succinct!

1. Elevator Pitch (150 words)

- Pitch your innovation, your innovation's impact, customers and business potential.

2. Team (150 words)

- How did your team form?
- What role will each team member play?
- What motivated you to create your innovation?
- What special capabilities, resources or experiences do your team members bring?

3. Opportunity (300 words)

- What issue or pain point does your innovation address?

4. Innovation (750 words)

- Describe your innovation, its design and your technology. How does it work?
- What is new or proprietary about the innovation?
- How does it meet needs and resolve pain points?
- What impact does your innovation create for individual users and humankind? Describe this qualitatively and quantitatively.
- How can new or proprietary aspects be protected and made valuable by one or more methods such as a patent, trade secret, copyright or otherwise competitively defensible configuration?

5. Validation/Progress (450 words)

- How have you validated your innovation, technology, or processes?
- What progress have you made in developing your innovation?

6. Market (300 words)

- Describe your customer and your target segments.
- What is important to them?
- What is the size of the opportunity?
- Is the buyer or payer different from the customer in this market?
- Describe the industry ecosystem.

7. Competition (300 words)

- What competes with your innovation, and how does your innovation compare?
- What are the advantages and disadvantages of your innovation?
- What is your positioning?

8. Go-To-Market (150 words)

- How will you attract and sell to customers?
- Who are the best initial or pilot customers?
- Is the market best served through direct sales, distribution, licensing, strategic partnerships or other strategies?

9. Business Model (300 words)

- What are your key revenues and costs?
- What are the pricing and costs to deliver one product or service unit?

10. Fundraising (150 words)

- What funds do you need to get started and how will you use these funds?
- How much will it cost to develop the product and roll out?
- What different sources will you pursue for funding and why are these a fit?

Reference Attachment

Add a list of the references you cited throughout the Innovation Brief here. Your background research sources may include websites, videos, news sources, scientific papers, interviews and other citable sources.

Additional Attachments

Include up to two optional attachments that provide additional context to the Judges. These visual aids or resources should supplement your responses above.



ASTRONOMICAL ACHIEVMENT

Nancy Conrad founded the Conrad Challenge in 2008. A former teacher, Nancy has become a recognized leader in transformative education and named one of the top 100 leaders in STEM education. She serves as a featured speaker at national and international conferences including TED, MIT, the Global Competitiveness Forum and the Global Diversity Leadership Conference at Harvard University. Nancy has also testified before the U.S. House of Representatives Committee on Science, Space and Technology detailing how the Conrad Foundation exemplifies the use of partnerships to improve STEM education.

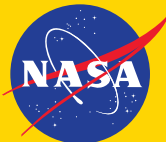
INNOVATION STAGE: VIDEO

OVERVIEW

In your 3-5 minute Innovation Video, demonstrate your innovation and how it works. Use a model, prototype or graphics to explain its technology, use, features and impact. You may introduce yourselves, discuss your motivation or founding story, customers, partners, impact and vision. Think about how to tell a convincing and credible story. Judges will watch the video to understand your innovation and evaluate its potential.

REQUIREMENTS

- Feature a model of your innovation, such as a sketch, 3D model, storyboard, wireframe, physical prototype or other visual artifact
- Create a video no more than 5-minutes in length
- Upload a direct link to your video in YouTube or Vimeo. The link must be accessible (either “unlisted” so that those with the link can view it, or “public”).
- Upload your video in the MP4 file format, which should be smaller than 800 MB



Did you know... NASA's Goddard Space Flight Center has a partnership with the Conrad Challenge that makes dozens of NASA's advanced patented technologies available to Conrad students to use in their innovations.

INNOVATION STAGE: WEBSITE

OVERVIEW

With your website, you'll broadcast to the public what you're working on, including its feasibility and potential impact. The Judges will review your website to understand not only your vision and your technology, but also how you plan to communicate your idea to the world.

REQUIREMENTS

- Tell your story to the public, explaining your team and its value, and anything else you want to share
- Show your innovation and explain its benefits with an image of a model of your innovation
- Communicate your brand, which is comprised of your name, logo, color scheme, voice, design, and more
- Make your site accessible by direct link so our Judges can see it! You may choose to hide your website from search engines

Smart in your world®
Arent Fox

Did you know... Conrad partners with generous sponsor firms, awarding valuable pro bono legal services.



ASTRONOMICAL ACHIEVEMENT

Pete Conrad was a distinguished U.S. Navy test pilot and NASA astronaut who commanded Gemini, Apollo and Skylab missions to space. After many years as an aerospace explorer, Pete's entrepreneurial spirit took flight, and he founded four companies devoted to the commercialization of space travel. Despite his great successes later in life, many don't realize that Pete struggled with dyslexia for most of his school education, at one point even being expelled for failing exam grades. Yet, teachers at his Darrow Boarding School believed in Pete's potential, turning his fortunes upward and enabling him to earn a Navy scholarship to Princeton.

INNOVATION STAGE: SCORING GUIDE

THEME	Description	% of Score
INNOVATION	How new or unique? How impactful? Is the technology innovative or does it combine existing technologies to create new results? Judges may perform an online search to verify originality of the approach or innovation. Is the innovation and originality incremental, strong or audacious when compared with existing solutions and technologies? Would the innovative technology or business either transform an industry or create meaningful impact for customers or humankind? Is the Intellectual Property protectable and made valuable through one or more patent, legally valid trade secret, copyright or otherwise competitively defensible?	30%
STORYTELLING AND PROFESSIONALISM	Would a reasonable investor be motivated to learn more? Has the team described the opportunity, its interests and motivations well? Is it inspiring? Does the Innovation Video & Website enhance credibility, present a logical story and show expertise? Would the appearance, writing and organization in all sections be credible to a reasonable investor?	20%
PRACTICALITY	Will it work? Is the technology employed realistic and attainable within a reasonable development time and budget? Consider the Innovation Video and other submissions. Does the team give proof of concept for new technologies or combinations? Proof of concept may include one or more of: existing applications of component technologies, expert testimony, research verifying feasibility, convincing graphic representation, partial or full prototype or demonstration, or describing further research/experiments likely to verify feasibility.	20%
MARKETING STRATEGY	Does the team understand key markets? Does the team understand potential customers and the industry ecosystem? Does the team have a realistic market entry and adoption strategy? Has the team considered licensing or partners, if appropriate? How well does the team explain differentiators between their innovation and current products/services? How effective is the website to demonstrate product value, tell a convincing story, explain technology credibly and engage potential customers and/or buyers?	20%
FINANCES	Does the team understand costs and funding? Has the team presented reasonable revenues and costs for the company overall? For one unit of product? Has the team estimated the costs needed to take their innovation to market? Cost includes material and component estimates and R&D including grants, licenses, market studies and labor costs. Has the team addressed raising funds for product development and rollout? Is the budget reasonable?	10%

INNOVATION STAGE: GUIDANCE

PUT YOUR BEST FOOT FORWARD IN THIS STAGE WITH ADVICE FROM OUR JUDGES, ALUMNI AND LEADERSHIP!



Build Judge and investor confidence in your innovation and business propositions by showing sources and footnoting facts and established hypotheses. Documented research also shows that the team vets ideas and assumptions rigorously. I want to work with that team!

**Simon Glinsky, Chief Judge
& Board Member**



The presentation of your team's innovation can make or break your score. In addition to making sure your content is good, ensure that you record quality sound, have good lighting and background and use proper editing tools to get the most professional video possible.

Umang Jain, Conrad '20



The patent system can provide immense wealth for commercializing disruptive technology in a sparsely populated field. The best advice I can give to Conrad participants is to investigate the patent landscape to assess the opportunities and risks to their business.

Craig Gelfound, Board Member

[CLICK HERE](#) TO ACCESS OUR STUDENT RESOURCES LIBRARY

INNOVATION STAGE: SUBMISSION CHECKLIST

DO YOU HAVE QUESTIONS? EMAIL US AT
INFO@CONRADCHALLENGE.ORG

[CLICK HERE TO WATCH WALKTHROUGH VIDEO](#)



Did You...

Make sure you followed the Innovation Brief word limit and video length limits? The [Conrad Portal](#) will warn you about missing requirements.

What's Next?

Be sure to continue to watch your email, as the Conrad Staff may be in touch with questions. We announce the Conrad Innovators and Finalists in February.

Did You...

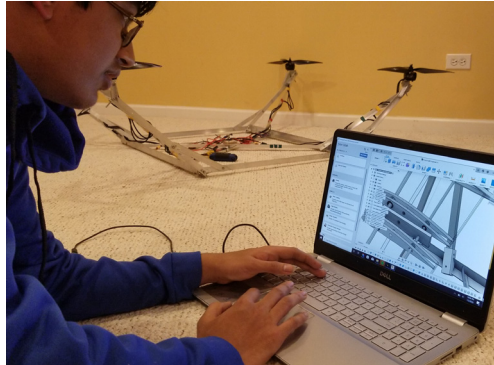
Prepare a list of references that you cited in your Innovation Brief and attach it in the attachment section?

Did You...

Ensure your website and video links in the [Conrad Portal](#) are valid, published and viewable by the Judges?

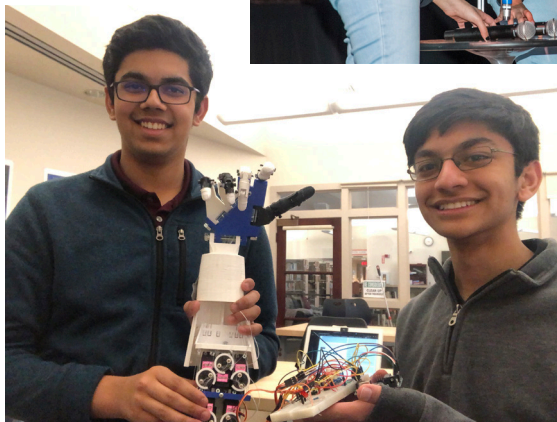
DEADLINE:
JAN 12, 2024 BY 11:59 PM ET

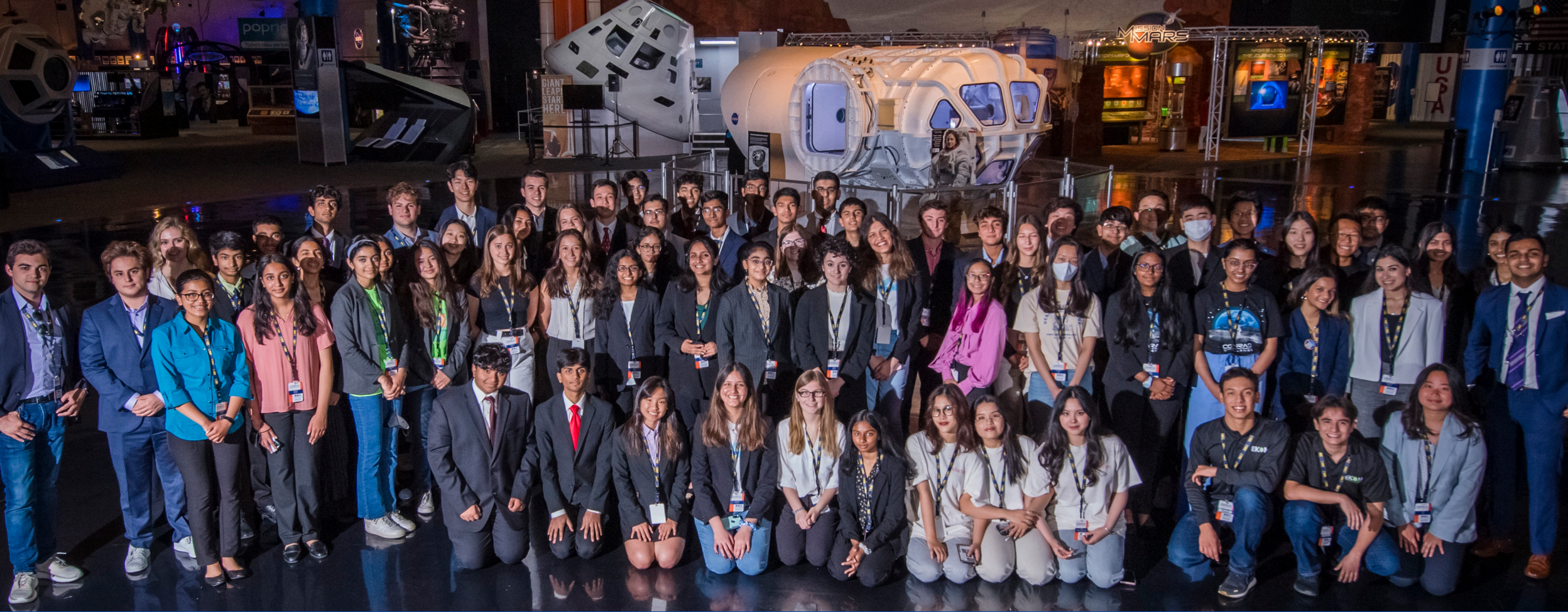
CONRAD INNOVATORS: CELEBRATING EXCELLENCE!



The Conrad Innovator distinction will be awarded to all individuals on a student team that excelled at all Innovation Stage requirements, as determined by our Judges. This merit of excellence signals that each student team member is among the very top innovators of their generation. Conrad Innovators receive numerous awards, including academic scholarships to esteemed universities and admission to entrepreneurial accelerators.

[Learn more about life after Conrad from our Conrad Innovators!](#)





THE CONRAD CHALLENGE INNOVATION SUMMIT - APRIL 23-26, 2024!

SPACE CENTER HOUSTON & NASA'S JOHNSON SPACE CENTER, HOUSTON, TEXAS

At the Conrad Challenge Innovation Summit, our top teams from the Innovation Stage are named Finalists and invited to pitch their innovations at Summit to our live panels of Judges. In addition, during Summit our Finalists, Judges, alumni and other members of the Conrad Community come together for a multi-day event full of dynamic workshops, tours, community sessions and speakers! The highest scoring teams are named Pete Conrad Scholars and receive prizes such as scholarships, pro-bono legal and consulting services, and Dell Latitude Laptops!



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