

NATIONAL STUDENT
SPACE
CONFERENCE 2020

UKSEDS.ORG/NSSC/QUESTION

@UKSEDS
#NSSC2020



UKSEDS

ANNUAL REPORT 2020-21



MARCH 2021

What a year. No one at an event venue, no team meet-ups, and no leaflets handed out. And I couldn't be more proud of the team. In what has been the most challenging year of most people's lives, there has been no lack of energy, no loss of optimism, and crucially, no lack of mutual support at UKSEDS. We have innovated and improved, and our reach to the student space community and general public has been greater than ever before.

Supporting young people is what we do, and the new ways we have been doing so this year have been a wonder to see. We launched a podcast, ran monthly careers webinars, launched a new website of educational activities for school students to do at home, collaborated with SEDS chapters around the world in a variety of events, moved NSSC online, and as if this wasn't all enough, we also created the Student Space Symposium - a new opportunity for our members to gain key skills by writing and presenting papers. It was incredible to see our competitions continue remotely, and this year expand to challenge teams in new ways and better prepare them for a career in industry. SpaceCareers.uk also continues to grow, now achieving in excess of 50,000 views a month, and remains the leading resource for young people to find their careers and advice.

Improving links both with and between our members, branches, and alumni, was a key priority this year. Now with a Discord server - a place for members to meet and discuss space-related topics, an alumni-member mentorship programme, and a long overdue revamped Branch Guide, we hope foundations laid this year will enable better opportunities for all parts of the UKSEDS community. We have also engaged more with our stakeholders this year, distributing for the first time a bi-annual Stakeholder Update, and advocating on behalf of young people on issues including job opportunities and inclusion at several events and in an international magazine.

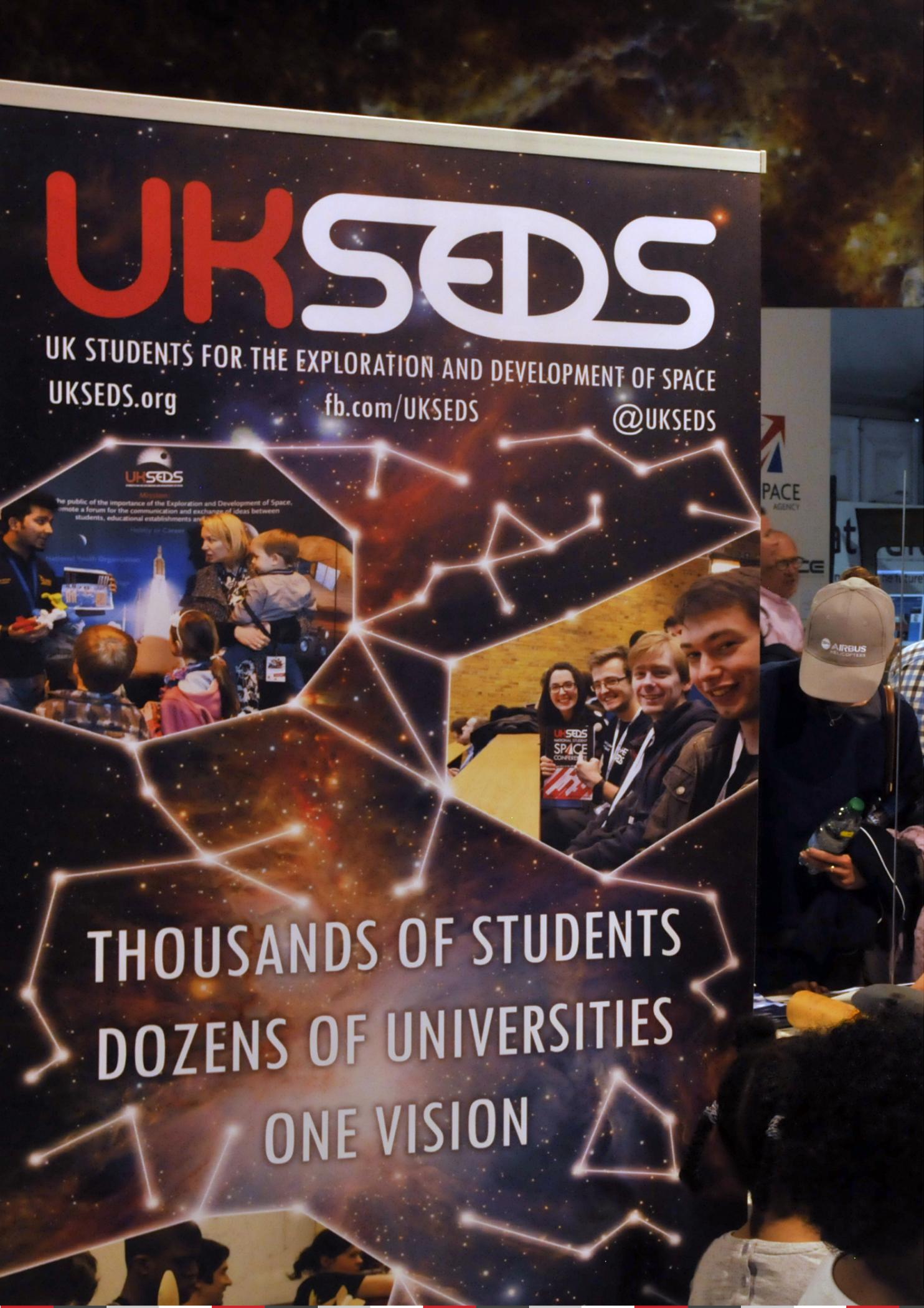
Making our community accessible and welcoming to everyone remains fundamental. This year we added a local approach to these values, supporting our branches directly by writing a Diversity and Inclusion Handbook to help them improve their activities and societies. As a student society, it is paramount that we don't close the doors to the sector on anyone at the first stage in their careers, make young people aware, and give them the skills to be inclusive. We continued this conversation on the national level, bringing people from across the sector together to share their experiences and advice at our second Diversity in Space Careers event in January, another example of how we have become a leading voice for change within the UK space sector.

Our organisation has grown drastically to a group of 80 incredible volunteers, enabling great productivity whilst also necessitating additional structures around retention and management. The Executive Committee have been truly outstanding in growing our volunteers, our activities, and new and existing relationships with space organisations; and they have been an absolute pleasure to work with. Surrounded by engaged stakeholders and dedicated young people who represent the future of the space sector, my time as Chair has been the best, most rewarding experience of my life, and I can't wait to see UKSEDS change the lives of so many more people across the country in the years to come.



Jacob Smith
Chair





**THOUSANDS OF STUDENTS.
DOZENS OF UNIVERSITIES.
ONE VISION.**

WE ARE UKSEDS.

Our mission is to engage young people with the space sector.

We have a vision of a thriving UK space sector in which young people play an active role.

We want to be an organisation that is an integral part of the UK's space sector, and that is recognised and engaged with as such by industry, government, and academia.

For students, we want to be the go to place for space careers information, and provide a wide range of opportunities to gain new skills and engage with the sector.

For the sector, we want to be the organisation that others come to when they are looking to recruit and engage with students.

Our strategy to achieve this focuses on four key areas:

Education

Advancing our members' knowledge, skills, and experience

Outreach

Promoting space to the public and school students

Advocacy

Representing and advocating the role of students within the space sector

Operations

Working 'behind the scenes' to enable our other activities

Education

Our education programme aims to advance university students' knowledge, skills, and experience so that they are equipped to be active members of the UK's space sector.

The core parts of this programme are our careers website plus our events, competitions, and projects, which provide opportunities to gain new skills and experience, both 'soft' and technical.

A key objective for the year was to encapsulate the experience of physical events within the online medium, while continuing to increase the range of topics we cover.

SpaceCareers.uk

With 2020 marking the 5th birthday of our early careers website, SpaceCareers.uk, this year was one of milestones, adaptation and more. The new year also brought new challenges but SpaceCareers.uk has continued to thrive, even in these difficult times. Since its launch in December 2015, the website has amassed over 1.8 million views, with an increase of 500,000 since last year alone. Along with our page views, the number of interviews, articles and job profiles has also increased, with careers resources for students across the country becoming more important during the global pandemic.

Disruption to our usual physical events schedule has seen SpaceCareers.uk adapt and press forwards, with over 10 episodes of our online webinar series "[Careers Launch Online](#)" produced since the beginning of 2020. The series has seen a variety of panels, companies, and individuals share their experiences and personal tips on how to access the space sector, with experts from a range of backgrounds giving insight into their daily jobs. With events now online, accessibility for students and young people across the country has increased, and SpaceCareers.uk has thrived when faced with the challenges of 2020. We hope to continue our online events through the coming year, and resume physical activities soon!



Events Programme

Student Space Symposium

October 2020 | Nebula | 700+ views

In October, we ran our first ever [Student Space Symposium](#). This new initiative provided UKSEDS members with the opportunity to write and present papers on space-related topics of their interest, with the chance to then publish their work. We received 68 brilliant abstracts from students across the country, 15 of which were selected for oral presentations at the symposium. Furthermore, a select few have now been selected for peer-review and publication in a special UKSEDS edition of the Journal of the British Interplanetary Society (JBIS), expected to be released in March 2021. All presented papers will be available on the UKSEDS website.

The Space Careers Show

November 2020 | Nebula | 400+ views

In celebration of our website turning five years old we hosted "[The Space Careers Show](#)", an educational event aimed at 11-18 year old students interested in getting involved with the sector. The show consisted of inspirational talks and panels, full of advice. It showcased the broad range of opportunities available and had further engaging elements including a live competition quiz and model rocket demonstration. A further event, specifically for members, was later held in December 2020, due to the successes of its predecessor.

Diversity in Space Careers

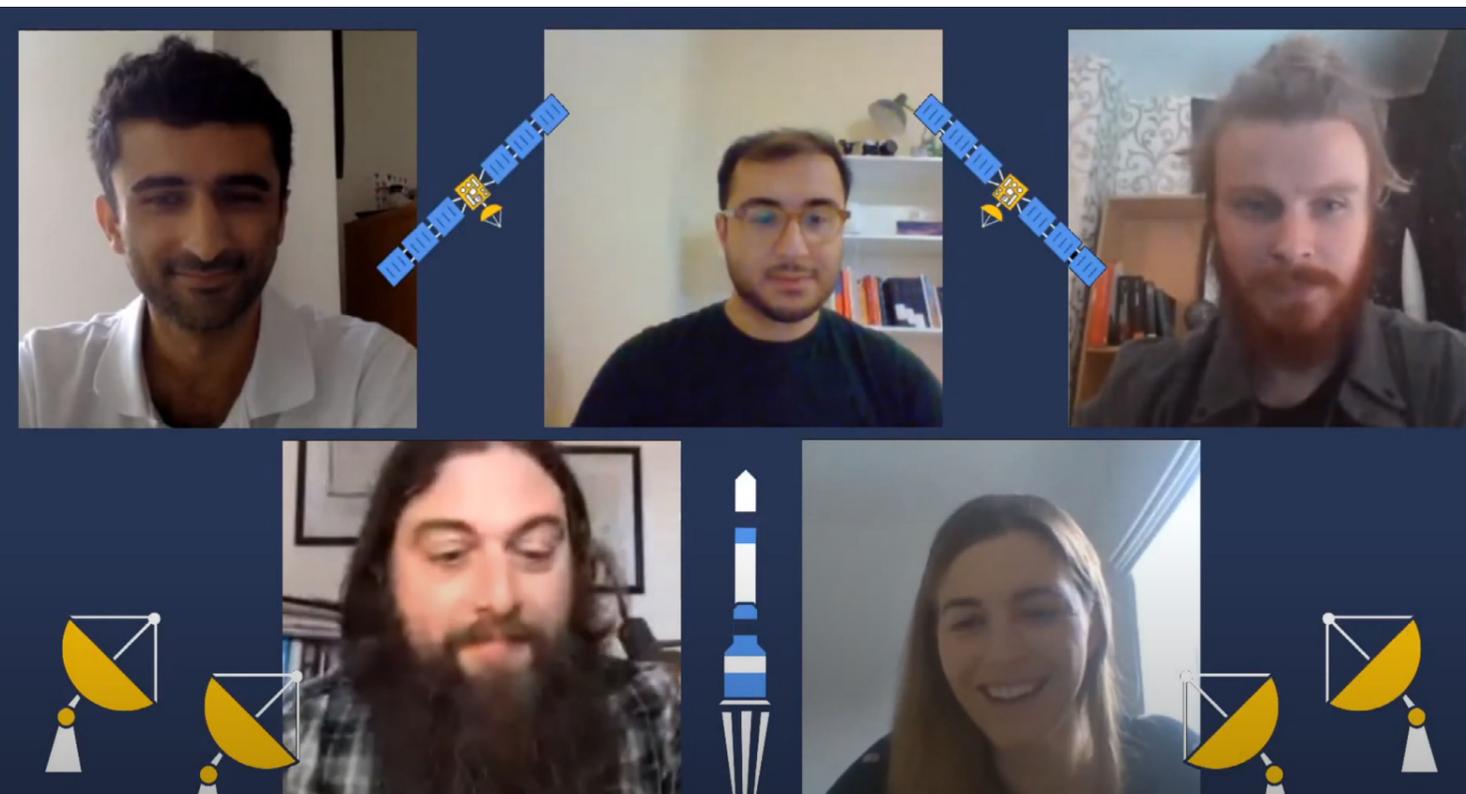
January 2021 | Nebula | 100+ views

Our second [Diversity in Space Careers \(DISC\) Conference](#) featured a variety of talks and panels exploring the importance of diversity and how individuals and organisations can better support those around them. We brought together a diverse group of space professionals to discuss their work, experiences, and what more needs to be done to make the space sector inclusive to all.

National Student Space Conference

March 2021 | Nebula | 2700+ tickets

This year, our annual conference was virtual. We had panels on space entrepreneurship, debris, the future of the UK sector, and spaceports, and we had a premier debate session on the topic of mega constellations. We also had three keynotes this year, Kathy Lueders, current associate administrator of the Human Exploration and Operations (HEO) at NASA, Timiebi Aganaba-Jeanty, assistant professor at the School for the Future of Innovation in Society at Arizona State University, and Prof. Yuichi Tsuda, project manager for JAXA's Hayabusa2 mission. For the sixth year, we collaborated with Airbus Defence and Space for the student presentation competition. In addition, we introduced a new opportunity for Ph.D. students to gain valuable speaking experience by offering two students individual speaking slots on their research.



Competitions

Despite the continuous cycle of adapting to new circumstances, we continued to run our competitions, even if they looked a little different. We still managed to grow, providing young people with more unique opportunities to develop practical skills which will prepare them for working in the space industry. This year we introduced workshops to prepare teams for participation in their competitions, and created the Orbex Gender Diversity Grant, in collaboration with Orbex. The grant offers full sponsorship to any team that consists of at least 50% women or non-binary members. We endeavor to encourage wider participation in the core technology aspects of launch vehicle, rover and satellite design and development, taking steps towards addressing the gender imbalance that exists within the space sector.

Satellite Design Competition (SDC)

11 teams

Our fourth Satellite Design Competition, in partnership with SSPI and now sponsored by Airbus, has yet again seen a rise in the number of competitors from 9 to 11 entrants. Continuing with last year's theme, the competition consists of a high-level mission and system design of a lunar CubeSat. Teams are currently working towards their CDR deadline in March where their work will be reviewed by their mentors and other industry experts. Following this, a selected few will progress to build and test their satellite in acquiring and analysing different sources of information on a simulated lunar surface.

Last year's competition day took place online ([available here](#)). The teams presented both their CDR and an extended design report, investigating the changes that would be necessary to adapt their CDR design to an realistic lunar mission. A live Q&A from our panel of experts followed presentations. Team GU Orbit, from the University of Glasgow, showcased a very detailed design with interesting adaptations and was the overall winner of the competition after winning both the best CDR and the best Final Report. SELENE, from Cranfield University, was awarded best presentation on the competition day.

Olympus Rover Trials (ORT)

16 teams

Airbus has joined RAL Space in sponsoring the fifth installment of the Olympus Rover Trials, currently in progress. The competition challenges teams to design, build and test small rovers with the objective of navigating a 'Martian' surface. This year, the Martian theme has evolved from a sample return mission to a new mission - assembling infrastructure on the surface of Mars. Teams are currently working towards their Critical Design Review (CDR) which will be reviewed by industry experts in the coming months.

Last year the build and test aspect of the competition was replaced with a Mission Design report, containing a detailed systems design of a realistic Martian rover mission. Teams presented their designs at a virtual competition day ([available here](#)). SUSF Phobos, from the University of Southampton, were the overall winners. They also picked up prizes for the best Mission Design report and the best Presentation, as well as sharing the best CDR award with Team Bath Roving from the University of Bath.

UKSEDS Orbex National Rocketry Championships (NRC)

28 teams

Now in its eighth installment, the NRC challenges teams to design, build and launch a mid-power amateur rocket with the primary goal of reaching the greatest apogee possible. This year, we included a mandatory payload as part of the design to align the competition more closely with the general purpose of rockets. With the addition of Orbex as the title sponsor, we can now offer teams matched funding, allowing more to take part. In addition, Orbex will invite the winning teams to join a test firing of their main stage rocket engine. The teams are now working towards completing their Design and Build reports due towards the end of March.

Last year, the competition was adapted to an online format, with teams submitting a more detailed Design and Build report. Cranfield Space Agency, from Cranfield University, won by reaching a theoretical altitude of 1121m with their rocket 'Message in a Bottle'.

Podcast

We're thrilled to have created [Preparing for Launch](#), a new podcast providing entertainment, education, advice, and insight to our audience. Our first series of 10 episodes featured a wonderful variety of guests from different areas and roles within the sector, and has achieved over 1000 listens so far.

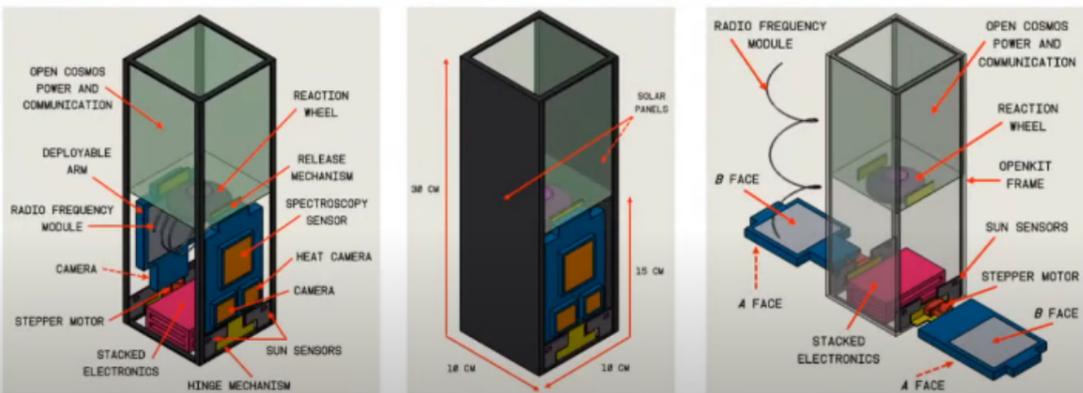


Outreach

As for most people, 2020 posed a number of challenges for the outreach team. With national lockdowns imposed, we were unable to deliver our usual quantity of face-to-face outreach events, but the team continued to provide fun and educational [space themed activities](#) for everyone to complete virtually. All our outreach activities have been adapted so they can be completed at home using household craft items. Alongside these, a virtual escape room has also been produced, providing a fun interactive way for younger years to learn about a variety of careers within the space sector. We have a number of long term projects in the works too, so watch this space for exciting new announcements over the coming months!

UKSEDS SATELLITE DESIGN COMPETITION 2020

OVERALL DESIGN (CDR)



Advocacy

Our advocacy programme aims to promote the views and concerns of students and young people within the space sector. In particular we campaign for greater support of students, the involvement of students and diversity in the development of strategy and policy.

Diversity & Inclusion

This year, diversity and inclusion has been a prominent consideration across the organisation, with the goal to create more inclusive spaces both within UKSEDS and the wider space community. This includes the creation of a [Diversity and Inclusion Handbook](#), which gives guidance to UKSEDS branches in how their societies and events can be as inclusive and accessible as possible. We have also been highlighting a diverse range of space role models, from past and present, across our social media. This project, 'Spotlight Sunday', features stories of people with a variety of roles within the sector. It aims to represent all communities and show that anyone has the potential to get involved with space.

During Black History Month, we ran a virtual panel titled: 'A Space for Black Voices'. This was run as part of the Careers Launch Online series and featured Black professionals from across the sector, discussing their journeys. The event aimed to increase awareness of the underrepresentation of many groups within the sector and share best practices on inclusivity, culminating with the Diversity in Space Careers (DISC) 2021 conference.



Opportunities for young people in the space sector

With space becoming more and more important in our daily lives, we need to educate young people about space-related activities and careers and provide them with the skills needed to enter the sector. There are year-round events for students of all ages, backgrounds and abilities and, if they know where to look, young people can find opportunities targeted to each stage of their development, leading to an exciting and rewarding career in the space sector.

At the birth of the Space Age, the USSR and the United States were the only nations involved, with funding largely provided by the government and with a small number of jobs mainly for specialist engineers, scientists and pilots. Over time, other nations began to form their own space agencies. There are now over 70 around the world at varying stages of development, and the range of jobs in the

space sector require education both within and beyond STEM (science, technology, engineering and mathematics). The global space sector has seen, on average, a 6.7 per cent annual growth since 2005. With this trend set to continue, it is important that young people are informed and educated about the vast range of space sector activities and their importance to our daily lives, as well as our aspirations to explore the universe.



Jacob Smith
Chair UKSEDS,
Cranfield University,
England



Antonio Duduianu
University of Bath,
England



Laura Martin
Liverpool John
Moores University,
England



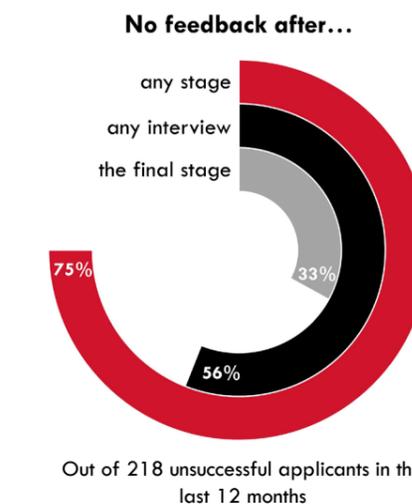
Christina MacLeod
University of
Edinburgh, Scotland

Events and Media

As well as writing an article on opportunities for young people in the sector for the ROOM Space Journal, we have had several excellent opportunities to promote our message and the feelings of the student space community to leading industry figures and policymakers at major events, including the Farnborough Airshow and the Space Industry Westminster Business Forum. We shared the next steps we believe need to be taken by the sector in the areas of skills development, diversity and inclusion, and outreach. This includes: promoting STEM to students from low socio-economic backgrounds to increase the talent pool; creating more internships in all disciplines and a broader range of graduate opportunities, particularly for non-STEM roles; and providing minority groups with role models, and a voice.

Job Application Process Survey

In September, we released a survey to gather students' views on how companies could improve application processes for internships and early career roles within the UK space sector. A common issue highlighted across the board was lack of feedback, with 75% of respondents having not received feedback at any stage. Feedback is vital during these processes, with one respondent stating that they were initially 'getting nowhere with job applications and the feedback gave [them] something to work on'. It was also found that 87% of respondents had, at least once, received no communication at all after any stage of the application process. Another highlighted issue was the large amount of experience often required for internships and early career roles. After analysing the data, we pledge to advocate for an increase in feedback and more considerate requirements.



A Space for Black Voices



Host – Molly Service



Speakers – Ashley Lindalía, Dr. Sian Proctor, Haley Harrison, and Chaneil James

Saturday 24th October
15:00 – 16:00 BST



@SpaceCareersUK
#CareersLaunchOnline

Operations

Our operational programme concerns our work 'behind the scenes' to enable our other principal activities. Without a motivated staff backed by effective systems we aren't able to achieve anything.

Membership & Alumni

Utilising the network and resources accumulated over the last 30 years, multiple initiatives were planned and continue to be executed to assist in the growth of our members, volunteers, and affiliated branches. After the first year of re-establishing our membership team, we are proud to share our achievements. We established the Branch Leaders' Meeting - an annual roundtable for all UKSEDS affiliated branch leaders - to encourage student leaders to collaborate and leverage UKSEDS' resources to empower their local student community; created a virtual platform on Discord for all UKSEDS members to engage and interact with each other, building a community of space enthusiasts; and kick-started the UKSEDS Alumni Mentorship Programme, to provide quality and tailored career advice for our members from our incredible alumni.

This year, at the National Student Space Conference, leaders from affiliated branches met for the second time to discuss how UKSEDS resources can be utilised for maximum benefit to its members across the nation. The results of this discussion will serve as crucial input, and further contribute towards building a sustainable, supportive platform for students interested in space.

Systems

This year has had the Systems team taking a larger role in consulting on every UKSEDS event, due to them all being virtual. The big achievement this year is the Nebula platform which Arran Reedman (one of our Systems Team members), with design assistance from Sophia Lee Roberts, has built for us. Nebula is the conferencing platform which has powered DISC 2021, NSSC 2021 and an earlier version powered SSS 2020 and The Space Careers Show.

Partnerships

British Interplanetary Society (BIS)

We have continued our valuable partnership with BIS, hosting the Student Space Symposium at their headquarters in London and working with them to organise a special UKSEDS edition of their journal, JBIS. In addition, we have been honoured to support their new CEO, Elizabeth Anderson, in her aims to diversify BIS membership and engage more with young people. We are excited to see what more we can achieve together!

UK Space Agency

We are grateful to UKSA for their continued support of our mission and activities and we look forward to another great year ahead, working together to benefit all across the sector.

Space & Satellite Professionals International (SSPI)

We have continued our valued partnership with SSPI, organising another Satellite Design Competition and assisting in the creation of a grant for young people participating in any space-related career development activity. We are excited to continue working together in the coming year!

Space-Comm Expo

We are excited to have become Media Partners for the Space-Comm Expo taking place in Summer 2021 and for a group of UKSEDS members to attend the event.

Orbex

We have established an exciting partnership with rocket firm Orbex, who have become the title sponsor of our National Rocketry Championship. They are providing funding for all teams in the competition, as well as the Orbex Gender Diversity Grant - additional funding for teams with 50%+ women and non-binary members across all our hands-on competitions.

Space Universities Network (SUN)

This year, we were pleased to support SUN's summer intern, as they developed careers resources for the space sector, and look forward to seeing the benefit they bring to students across the country.

Space Skills Alliance (SSA)

We are glad to continue to support the Space Skills Alliance with relevant data on the student community, and see the brilliant work they are doing in addressing the skills shortage and inclusive practices in the sector.

SEDS Earth

This year we have run some exciting events in collaboration with SEDS chapters from around the world, including a global Kerbal Space Programme gaming competition, and debates and panel discussions for World Space Week.



Legal Changes

In the past year, we have finally closed the chapter on the organisational changes that were first proposed a number of years ago. This time last year, there were two UKSEDS charities as we underwent the transition; an unincorporated, run-of-the-mill charity, and a CIO (Charitable Incorporated Organisation). Now we are back to just the one, the CIO. This change was necessary to protect our volunteers in legal agreements and to reflect our growing professionalism as an organisation.

Finances

Due to the legal changes going on (see the legal section), we have had 3 financial years in the last 12 months. The old charity's 2018-2019 financial year was extended by 6 months so that we could wrap the old charity up in that additional time and therefore not need an additional financial year, bringing more paperwork. Unfortunately, due to a number of delayed payments, this wasn't possible and so we had another financial 'year' until the 28th of July 2020 when the old charity was officially closed.

	Old charity		New charity
	30 Nov 2018 - 31 May 2020 ¹	1 June 2020 - 28 July 2020 ²	1 Dec 2019 - 30 Nov 2020 ³
Starting balance	19,007.84	5.95	1,433.73
Income³	74,113.14	1,850.00	13,331.13
Expenses³	72,240.96	0.00	1,608.40
Profit³	1,872.18	1,850.00	11,722.73
Net transferred between UKSEDS charities	-20,874.07	1,855.95	22,730.02
Closing Balance	5.95	0.00	35,886.48¹

¹Extended financial year by 6 months

²Shortened financial year due to charity closure

³Excluding the money transferred between one UKSEDS charity to the other

The year to date finances (at the time of writing, 31/01/2021) are as follows:

As you can see, we are in a very strong financial position and are financially secure for the foreseeable future. This is due to our policy of good fiscal responsibility in all of our activities coupled with the reduced spending this last year as we have undertaken very few in-person activities.

Starting balance	35,886.48
Income	10,578.92
Expenditure	304.41
Profit	10,273.88
Current balance	41,160.36

UKSEDS

We are a registered charity no. 1182239

Our charitable objects are to advance education for the public benefit, by making a forum for the communication and exchange of ideas between students, educational establishments, industry and the general public; and to act as a resource for young people in the UK with an active interest in space, by providing advice and assistance to improve their knowledge base, skill sets, and hands-on experience

Our Trustees and Executive Committee are elected by the Membership in accordance with our Constitution, and plan our activities with regard to the Charity Commission's guidance on public benefit, our Objects, and our long term strategy.



Executive Committee

Jacob Smith (Chair)
Sophia Lee Roberts (Vice Chair)
Alex Crossman (Secretary)
Arran Reedman (Treasurer)
Antonio Duduianu
Paige Ramsden



Non-exec Trustees

Portia Bowman
Matthew Goodman
Julia Hunter-Anderson
Sheila Khanani
Graeme Taylor
Matjaz Viadmar

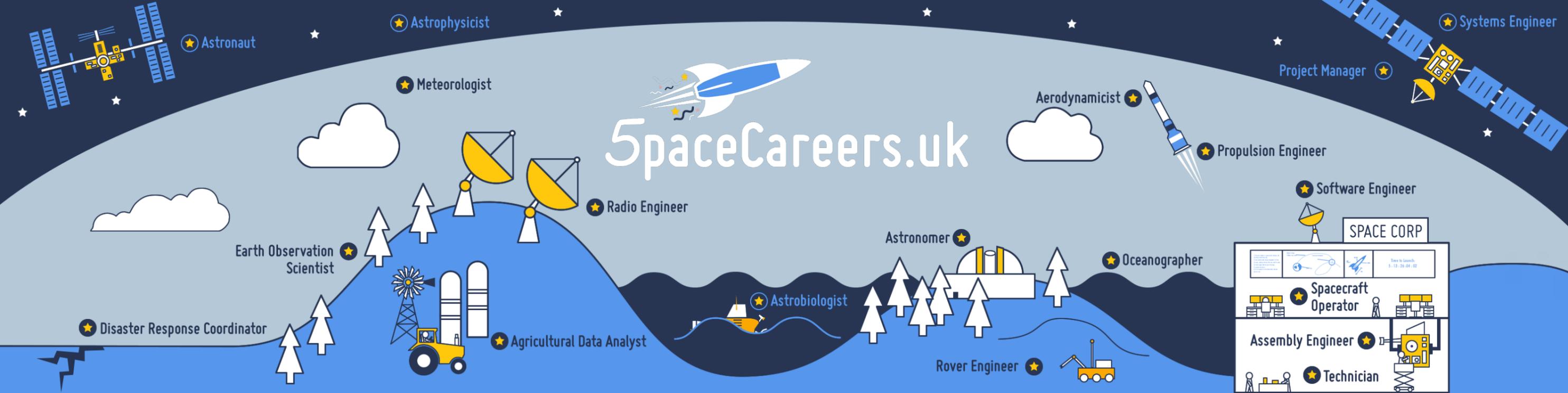


enquiries@ukseds.org
@UKSEDS
fb.com/UKSEDS

27/29 South Lambeth Road
London
SW8 1SZ

Staff

Emmanouil Apostolidis	Sam Peter Harrison	Jack McHugh	Ross Slater
Carina Assi	Cameron Harvey	Laura Millson	Sharon D-Souza
Joshua Bernard-Cooper	Atheeq Hassani	Goh Lian Ming	Christos Stavrou
Isaac Caletrio Berridge	Lilli Helps	Anastasia Nairne	Amy Stockdale
Asia Bulgarini	Chaneil James	George Newton	Natalia Stylianou
Natasha Carr	Kirushney Kalamohan	Oluwadamilare Opeyemi	David Sulley
Ben Cartwright	Sidhi Karavadra	Craig Orrock	Caroline Swenson
Ana Paula Guevara Cerdan	Nadia Khan	David Parfitt	Richard Tait
Nishika Chetry	Manisha Kushwaha	Elizabeth Pasatembou	Tee Jay Taiwo
Lauren Church	Zak Kusners	Pratyaksha Purohit	Keeley Taylor
Charlotte Crawshaw	Sarah Latham	Mohammad Rahman	Heidi Thiemann
Tom Benham-Crosswell	Zhen Zong Lim	Seonaid Elizabeth Rapach	John Joe Toop-Rose
Thomas Woelker-Darley	Ethan Goldsmith Lister	Samiksha Raviraja	Sophie Treneman
Hannah Dawe	Alix Macdonald	Sach Reddy	Em Truman
Joseph Dudley	Christina Macleod	Hannah Rosenbaum	Karan Vakharia
Mary Fafolu	James Magson	Jack Rosenthal	Thomas Varnish
Olivia Freestone	Joel Mario	Muskaan Sakharkar	Anna Veldman
Jessica Goldie	Laura Martin	Zaria Serfontein	Sarah Watson
Magdalena Grzybek	Guillermo Marvizon	Molly Service	Angharad Weeks
Gautam Gupta	Donal McCaughey	Aaron Singh Sidhu	Armin Ziadlourad



The 15th December 2020 marked the 5th birthday of SpaceCareers.uk. With nearly 2 million views, the website continues to be a thriving resource for students across the country, and by posting internships, grad schemes, PhD's and more, SpaceCareers.uk jobs board has become the go-to location for finding early career roles in the space sector. Below are some highlights of the amazing achievements that have been made over the past 5 years.

1.8 million+
page views

The Website

34 articles
59 interviews
28 job profiles

1800+
jobs posted from
430+
employers

Events

- 9 Careers Launch Online webinars
- 6 RISpace Careers / Careers Launch conferences (2016 - 2020)
- 5 National Student Space Conferences (2016 - 2020)
- 3 Student Space Ambassadors training events
- 2 Space Careers Show / Birthday events
- 2 Diversity in Space Careers conference (2018)

150+
outreach events
reaching over

8000+
people

5
national awards

More!

1 SPINtern
4 published papers and posters
2 articles published in magazines
Countless emails sent and received

50+
volunteers

Outreach

60 primary school students written to
22,000+ leaflets distributed

Some Challenges...

We weren't taken seriously at first...

Sometimes companies expect immediate responses - they don't realise we're all student volunteers!

It can be stressful trying to get our own jobs while helping others with theirs!

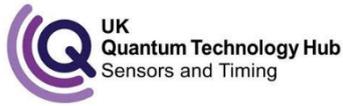
Working on a very low budget!

Thank you to all the amazing volunteers and contributors who have made SpaceCareers.uk what it is today. The website would not be what it is without all of you and it is now one of the most valuable resources out there for all students wanting to enter the space sector. A special thank you also to Joseph Dudley and Portia Bowman who originally created SpaceCareers.uk!



OUR WORK IS MADE POSSIBLE BY

OUR CORPORATE PARTNERS



ADDITIONAL SPONSORS AND SUPPORTERS

