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Achieving Space Environmentalism and Sustainability by Creating a Circular Space Economy

9th Annual Space Traffic Management Conference

Bass Lecture Hall, LBJ School of Public Affairs

The University of Texas at Austin

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Biographies

Shannon Abelson is currently finishing her final year as a doctoral candidate in philosophy at Indiana University Bloomington. There she works in philosophy of astronomy and astrophysics, general philosophy of science, and space environmentalism. She is particularly interested in models and simulations in physical science, as well as epistemic and methodological aspects of data-driven science. More recently, Shannon has begun to work on the normative aspects of space exploration. Her dissertation is titled, "An Epistemology of Data-Driven Astronomy and Astrophysics."

LaQuila Alonso, an Embry-Riddle Aeronautical University Senior Undergraduate, is a tribal member of the Navajo Nation, raised on the To'hajiilee Indian reservation located in "The Land of Enchantment," New Mexico. A great deal of her adolescent upbringing occurred on the To'hajiilee Indian reservation and the Laguna-Acoma Pueblo Tribe. She is a U.S. Air Force Reservist with an occupation in Munitions Systems Technology, totaling 15 years' experience between both Active-Duty and the Reserves. The military allowed making her life's journey full of adversity, strength, and impact. Aside from the military, she wanted to try stepping out and making a name for herself utilizing her personal experiences attributed from her culture, heritage, and the military. Her purpose led her to becoming a research assistant for Dr. Janet Tinoco at Embry-Riddle Aeronautical University on behalf of the O'Malley College of Business. Currently, she is a part of the College of Aviation pursuing her Bachelor of Science in Spaceflight Operations. During her brief time at Embry-Riddle, she's discovered the diverse curriculum in space law, space policies, and space system designs set her up perfectly for exploring ways of promoting the inclusion of Indigenous communities in the space industry. She is an active member of programs on and off campus that promote mentorship, networking, and academic excellence. These programs are the Association for Women in Mathematics, the National Space Club Florida, and the Veteran's Student Organization. Most recently, her work as a research assistant has led her to become an O'Malley College of Business Philanthropy Council Award Recipient.

Mark Baird is the President of Virgin Orbit National Systems. He brings his broad experienced background in the space industry and enthusiastic leadership to the Virgin Orbit National Systems Team, joining in August 2021. Prior

to joining Virgin Orbit National Systems, Mark was the Principal Director of Strategic Integration for Lockheed Martin Space. Working in the Special Programs line of business, he was responsible for formulating strategies in support of National Security Space customers and managing program performance. Previously, in the Strategy and Business Development group, Mark supported the development and operationalization of the LM Space strategy for both the individual programs and enterprise initiatives.

Mark retired from the Air Force in Sep of 2019 and served as Deputy Director of the Space Force Planning Task Force, responsible for the detailed planning activities associated with standup of the United States Space Force. He also served as Deputy Director, National Reconnaissance Office where he engaged with combatant commanders, intelligence community, DoD officials and Hill staff in building and operating a broad portfolio of space capabilities. He likewise served as Director, Space Acquisition for the Secretary of the Air Force (Acquisition, Technology, & Logistics), Vice Commander, Space and Missile Systems Center (SMC) supporting all activities associated with the \$13B portfolio of Air Force space programs, and System Program Director, Space Superiority Systems, at SMC--the Wolfpack.

With more than thirty years of experience leading and driving large, diverse organizations through significant and pivotal change, Mark is skilled in building, articulating, and executing complex strategies, \$Billion budgets, and program efforts across multiple levels of equity. He has had extensive interface with Industry, Congress, the Executive Office of the President, Corporate Boards, and Department of Defense oversight organizations.

Mark received a bachelor's degree in Business Management and Finance from the Florida State University and a Master of Science in Operations Management / Industrial Production from the University of Arkansas. He twice served in fellowships—first on Capitol Hill as a Legislative Fellow, then with Deutsche Bank, London UK as part of the Secretary of Defense Corporate Fellows Program. He also worked at Pratt & Whitney Government Engines and Space Propulsion as part of an Education with Industry fellowship. Mark has vast experience in government program management, contracting, systems engineering, and agile software development principles primarily focused on space.

Curt Bilby is the Managing Director and CFO for Share My Space, France. For 20+ years, Curt has served in senior leadership roles developing strategies and directing market engagement along with raising debt/equity financing. His teams have repeatedly brought new ideas to market to build shareholder value across diverse markets. Previously, Curt was the CEO of an art testing company (New York | London), three biotechnology companies (Austin), and a healthcare IT company (Paris). He was the past Chairman of both the Austin Technology Council and BioAustin and has served on numerous review committees for NASA, NIH and NSF.

Dr. Travis Blake serves as the Program Officer for Space Traffic Coordination within NASA's Science Mission Directorate (SMD). Prior to joining SMD, Dr. Blake served as the Chief Commercial Officer for Privateer Space, where he provided expertise in enhancing space situational and domain awareness, as well as space traffic coordination to increase safety and sustainability. He has also held executive roles at Kairos Ventures and Lockheed Martin after enjoying a 20-year career in the United States Air Force. Dr. Blake has an extensive background in technology-leadership, integration planning, commercial product strategy formulation, and experience in leading space-related technology initiatives.

Dr. Blake is also a recognized government leader and expert on critical space technologies, which enabled him to lead Presidential strategy and policy for restricted national space initiatives. Dr. Blake holds a Ph.D. and Master's in electrical engineering from the Air Force Institute of Technology and a Bachelor of Computer Engineering (with honors) from the Georgia Institute of Technology.

Stephanie Buglione is a former student at Western Michigan University (WMU), where she studied Geochemistry. She has worked with the National Space Society, participated at NASA Workforce Programs MCS and NPWEE,

and served as the Lead Sponsorship Chair for Skydive Broncos. Currently, Stephanie is applying for a Masters in Engineering Management at WMU.

Ana Carrasco is a former Elliott School of International Affairs student at George Washington University. She is also a former panelist at this conference. Last year, she discussed existing international law regulating space and the most-consequential implications of dual-use technology for outer space's peaceful use. Currently, Ana is pursuing a position at international institutions, including the International Monetary Fund and World Bank, to gain experience in fostering international cooperation between public-private partnerships. Ana wants to ultimately work in the space sector and transform this conference's ideas into reality, advancing international cooperation to ensure outer space's safe, secure, and sustainable use.

Becky Cudzilo is an Engineering Fellow at Astroscale U.S. with more than four decades of experience in the classified and commercial community—primarily in spacecraft design, optical instruments and data processing. Most recently, she has served as the principle instrument advisor for a DARPA material analysis program.

She has an extensive background in spacecraft and payload development including as a Technical Engineer and Proposal Lead for the SMC hosted RF payload A-DCS effort; design and development of Electro-Optical and Video satellite systems operated in a Space Situational Awareness needs mission assessment and payload analysis. Prior to Astroscale, she was the Program Manager and Chief Engineer for two NASA Goddard Sustained Land Imaging Instrument and business development studies.

Phillip M. Cunio attended graduate school in Aeronautics and Astronautics at the Massachusetts Institute of Technology, where he led a team of students in developing a prototype hopping vehicle for planetary surface exploration, including building and exercising flight hardware systems in Earth gravity and in microgravity. He has experience in designing spacecraft for mission types ranging from long-duration human transit to remote sensing, and has side research interests in system architecting and human factors. In 2011, Phillip was a member of a team of graduate students working on orbital debris mitigation, during which effort the concepts of orbital debris mitigation as an in-situ resource utilization project were first developed.

Phillip also has background in educational and public outreach, including delivering a live lecture while on a field session at the Mars Desert Research Station in Utah and consulting as a technical expert for works in the theater and film.

Dr. Nathaniel (Nate) Dailey is an internationally recognized expert in space-related international affairs at The MITRE Corporation, is a principal space engineering enterprise architect at the Center for Enterprise Transformation and Execution, and the MITRE International Space program lead in McLean, VA. Dailey is the International Regional Vice President of the Space Force Association, appointee to the International Academy of Astronautics (IAA) Space Traffic Management Committee, and former Fellow of The Hague Institute for Global Justice Off World Approach.

Dailey most recently authored for DHS Cybersecurity & Information Security Agency (CISA), the "Space Critical Infrastructure Risk Assessment Analytic Framework;" and the Office of Space Commerce Systems Engineering Management Plan and associated pre-acquisition architecture and engineering deliverables for Traffic Coordination System for Space (TraCSS). He is co-chair of the IAA space traffic management committee working group for cislunar and Mars. As the vice president of the Space Force Association for the International Region, he enables space-related international discourse and advises among international commercial and government entities engaging in data and information sharing ecosystems for space. He authored seminal work to apply sound scientific methodologies for multivariate linear regression-based Architecture Impact Assessments for space systems, designed to improve financial investment decision making and the probability of space systems' program success advancing stable socioeconomic conditions of trust and confidence building.

Dailey is a Carnegie Mellon University Certified Enterprise Architect and a member of The Global Honor Society for Public Affairs & Administration, Pi Alpha Alpha. In addition to the IAA, Dailey is a member of the Royal Aeronautical Society, the International Astronautical Federation, and the American Institute of Aeronautics and Astronautics. He holds a Bachelor of Social Sciences from Pace University, a Master of Public Administration and Policy from American University School of Public Affairs, and a Master of International Public Policy and Doctor of International Affairs from Johns Hopkins University School of Advanced International Affairs (SAIS).

Richard DalBello is currently the Director of the Office of Space Commerce. In this role he is responsible for managing the Department's efforts to establish a space traffic control system to ensure safe space operations for commercial and international civil space ventures. In addition, Richard is responsible for the regulation of the US commercial remote sensing industry and for general advocacy, across the government, for commercial space industry interests.

Prior to joining the Department of Commerce, Richard was Virgin Galactic's Vice President of Global Engagement. In this role, Richard was responsible for international business development for the company's unique fleet of carrier aircraft and space vehicles. Prior to joining Virgin, Richard served as Director, Space and Aeronautics, in the White House Office of Science and Technology Policy. In this role, he served as the principal advisor on space and aeronautics matters to the Science Advisor to the President. In this position, Richard played a key role in the development and implementation of the Administration's domestic and international space policy and program priorities.

Prior to joining OSTP, Richard served as the Vice President of Government Affairs for Intelsat General. He served previously as president of the Satellite Broadcasting and Communications Association, and for more than three years as the president of the Satellite Industry Association. Richard earned a bachelor's degree in political science from the University of Illinois, a master's degree in law from McGill University, and a doctorate in jurisprudence from the University of San Francisco.

Pietro De Marche is a space systems engineer and passionate about space. He graduated less than two years ago with a double masters in engineering and French and Italian. Pietro developed his master's thesis during an internship at NASA-JPL and he now works at the Italian company AIKO in Turin, Italy, developing cutting-edge artificial intelligence for space missions. At AIKO, he works on mission feasibility studies, constellation optimization, and mission simulation. In addition to his passion for space, he also does volunteer work and enjoys mountain climbing and ultralight flying. Pietro strongly believes that progress in the space sector can guarantee consistent improvement for life on Earth.

Ralph "Dinz" Dinsley is currently the Senior Advisor to Raytheon NORSS; the lead Space element of Raytheon UK, with more than 23 years of experience working across military, civil and commercial Space Situational Awareness (SSA).

An RAF veteran with more than 32 years of service initially specialising in Air Defence, a posting to RAF Fylingdales opened his eyes to higher altitudes. His military career subsequently continued in Space Surveillance and Tracking (SST) and SSA roles until he retired in 2017. Wanting to bring 'space' to the NE Dinz founded and led Northern Space and Security Limited (NORSS) until its acquisition by Raytheon late in 2022.

During his distinguished service, Dinz led the UK MoD operational contribution to global SSA supporting two significant programmes: the early stages of the military Combined Space Operations Initiative and the civil led EU Space Surveillance and Tracking Framework. His unique military space experience was further underpinned as a Chief of the Air Staff Fellow, with an MA in Peace and Development from Leeds Beckett University. His

dissertation titled “Critical Perspectives on UK Space Security” explored the vulnerabilities and threats of space operations against past, present and future UK aspirations.

Dinz is a proactive proponent of space sustainability and the development of a truly circular space economy, and since the formation of NORSS has worked across a significant number of projects on both ground based and space based SST. He has worked with both government, Prime contractors and SME in developing UK experience in supporting space sustainability. An integral member of the NE Space Leadership Group, shaping the Space vision, mission and strategy for the NE of England, Dinz is also an administrator for Global Network on Sustainability in Space (GNOSIS), a Fellow of the Royal Aeronautical Society, was an observer to the Hague Space Resource Governance Working Group and is also exploring, in partnership with Professor Chris Newman, of Northumbria University, the influence of Law on technical developments for Space Traffic Management through the concept of the Space Law Games.

Scott Dorrington is a postdoctoral researcher with interests in astrodynamics, space mission design, space resource utilization, and space sustainability. He received a doctorate in astrodynamics from the University of New South Wales, focusing on the technical and economic feasibility of asteroid mining missions. He is currently a postdoctoral researcher in the Space Enabled group at the MIT Media Lab, working on the development and implementation of the Space Sustainability Rating. His current focus is in developing metrics to quantify how detectable, identifiable, and trackable space objects are from ground-based sensors.

Benjamin Feuge-Miller is a Ph.D. candidate majoring in Computational Science, Engineering, and Mathematics at The University of Texas at Austin, Oden Institute, funded through a National Defense Science and Engineering Graduate Fellowship. His work specializes in statistical inference for anomaly detection and pattern recognition, in particular for optical detection and tracking of space objects. He has previously worked with the Air Force Research Laboratory, L3Harris Technologies Inc., and the Applied Research Laboratories of The University of Texas at Austin.

Rebeca Saray Griego is a Systems Engineer at Astroscale U.S. working on LEX, the Life Extension service in GEO, active debris removal (ADR) concepts in LEO, and is also a technical writer supporting proposals and partner agreements. Rebeca has been interested in space sustainability for more than a decade. Prior to Astroscale, she completed research projects related to orbital debris through the McNair Scholars program at California State University Long Beach (CSULB) and interned at the NASA Orbital Debris Program Office. Rebeca holds a BS in Mechanical Engineering from CSULB and is currently enrolled in Embry-Riddle University’s MS in Aviation and Aerospace Sustainability program with an anticipated graduation date of December 2023.

Sophia H. Gustely is a graduate student enrolled in Aerospace Business Analytics at Embry-Riddle Aeronautical University, O’Maley College of Business (OCOB) in Daytona Beach, FL, US. She serves as the Graduate Assistant at the College of Business as well as the Graduate Assistant for the Office of Undergraduate Research as the Student Analytics and Outreach Manager. At the university, Ms. Gustely also received her bachelor’s degree in Business Administration with a concentration in Management and a minor in Psychology with Summa Cum Laude honors.

Ms. Gustely has led research in space debris mitigation from the business perspective and has presented at conferences such as NCUR and Posters on the Hill. For her research on space debris mitigation, Ms. Gustely received the NASA Florida Space Grant. Ms. Gustely continues to pursue aerospace projects and will conduct research on Space in Emerging Economies this upcoming year. She has received the Embry-Riddle Aeronautical University Research Scholars Award, recognized for her "exemplary personal and professional strides and her contributions to the campus and academic community." Her involvement in the aerospace and aviation industry extends to other endeavors such as working with the Boeing company and interviewing former President and CEO of Airbus, Barry Eccleston. She has a certificate of achievement for demonstrated logistician designation and the Boeing Business Fundamentals certificate.

Dan Hawk was born and raised on the Oneida Indian Reservation in Wisconsin. On March 30, 2022, Dan addressed the United Nations Legal Subcommittee of the Committee On the Peaceful Uses of Outer Space by providing the history-making General Exchange of Views. Dan has been appointed to lead the Lunar Surface Innovation Consortium Lunar Dust Interoperability and Standards Focus Group. Dan discovered how lightning strikes and is currently working with the U.S. Occupational Safety and Health Administration to prevent dust explosions in mines and factories.

Dan enlisted in the Army National Guard out of high school and served in the Navy as a nuclear reactor operator on two Fast-Attack submarines. Dan was a senior power plant operator at UW-Madison and UW-Madison Hospital. While working with the Wisconsin Space Grant, Dan and Dr. Aileen Yingst founded the First Nations Launch and the Tethered Aerostat Program. Following WSGC, Dan supported the Montana Space Grant in ensuring the Salish Kootenai Tribal College was successful and BisonSat was launched on October 8, 2015. Following BisonSat, Dan worked with the U.S. Department of State, to remove Native Americans from the International Traffic and Arms Regulations List. Prior to BisonSat Dan helped the El Paso Community College with two NanoRacks ISS Experiments and launched a payload RockOn payload on a suborbital Terrier-Orion in 2009. Dan is a recognized Amazon Black Earth expert with NASA, NOAA, and the DOE in the latter Dan made one ton of high CEC carbon and is being used to mitigate radiocesium-137 on Bikini Atoll, Republic of the Marshall Islands. Dan currently supports Space Traffic Management, Lunar Surface Innovation Consortium, Green Aero industrial hemp rocket fuel research, NASA Office of Tribal Affairs, and the new National Native American Space Grant. Dan is an International Committee Member for the National Space Society, a Member of the United Nations Indigenous Committee. Dan also is on several indigenous and space panels like the Indigenous Research Center, MIT Space Enabled Group, and Anthropogenic Environmental Impact on Space Traffic.

Dr. Doug Hendrix is a founder of ExoAnalytic Solutions and serves as Chief Executive Officer and Chairman. For 25 years, Dr. Hendrix has developed advanced software solutions to enable the United States to maintain its technological superiority in EO/IR sensing for missile defense and space situational awareness. Dr. Hendrix has a broad professional background that ranges from research and development to commercial software development in the areas of atmospheric, underwater and nuclear explosions, hyper-velocity impacts, space weather, and the development of a commercial fusion reactor.

As a co-founder of ExoAnalytic Solutions, he had one major idea in mind for the company, which is to build a focused team comprised of the best and brightest in the industry to develop and field cutting edge technology to greatly surpass the state of the art. In his current role at ExoAnalytic Solutions, he remains deeply involved in technology development for both missile defense and space situational awareness.

Dr. Hendrix earned a B.A. in Physics from the University of California, Berkeley and obtained his M.S. and Ph.D. degrees in physics from the University of California, Irvine, and is the proud son of a former submarine officer.

Moriba Jah is an Associate Professor of Aerospace Engineering and Engineering Mechanics at The University of Texas at Austin, where he is Director of the Computational Astronautical Sciences and Technologies group and Lead for the Space Security, Safety, and Sustainability Program at the Strauss Center for International Security and Law. He is Co-Founder and Chief Scientist for Privateer Space Inc., and previously worked with the Air Force Research Laboratory and Jet Propulsion Laboratory. He holds the Mrs. Pearlie Dashiell Henderson Centennial Fellowship in Engineering, is a TED, AIAA, IAASS, AFRL, AAS, and RAS Fellow, and an Associate Editor of Elsevier's Advances in Space Research, Acta Astronautica, and Space Safety Engineering Journals.

Dan Jang is a Ph.D candidate in the Department of Aeronautics and Astronautics at the Massachusetts Institute of Technology, and is advised by Professor Richard Linares in the ARCLab. Prior to starting school this past fall, Dan worked at the MIT Lincoln Laboratory in the Space System Analysis and Test group, leading government space

system projects and in Space Situational Awareness, sensor modeling and multi-modal sensor fusion techniques. Dan is has a B.S. and M.Eng in Electrical Engineering and Computer Science from MIT.

Kaitlyn Johnson is deputy director and fellow of the Aerospace Security Project at the Center for Strategic and International Studies. Ms. Johnson supports the team's strategic planning and research agenda. Her research specializes in topics such as space security, military space systems, and commercial and civil space policy. Ms. Johnson has written on national security space reorganization, threats against space assets, the commercialization of space, escalation and deterrence dynamics, and defense acquisition trends. She is also a cohost of the CSIS podcast Tech Unmanned, which features guests with both policy expertise and technical expertise in order to break through the national security jargon and technology hand-waving to get to the core of the technical realities of these emerging capabilities, benefits to development, and the barriers to success. Ms. Johnson holds an MA from American University in U.S. foreign policy and national security studies, with a concentration in defense and space security, and a BS from the Georgia Institute of Technology in international affairs.

Therese Jones is the Senior Director of Policy at the Satellite Industry Association, where she leads the 60+ company organization on regulatory, legislative, defense, space sustainability, cybersecurity, and export control issues. Prior to joining SIA, Therese was an assistant policy researcher at the RAND Corporation where she focused on space policy. In this role, she supported the Department of Defense, Department of Homeland Security, National Geospatial-Intelligence Agency, U.S. Air Force, and U.S. Army in assessing new space technologies, increasing the resilience of the national space architecture, and determining commercial acquisition strategies for communications and remote sensing services. Before transitioning into space policy, she worked as an astrophysics researcher focusing on galaxy formation and evolution. Therese holds a master's in Policy Analysis at the Pardee RAND Graduate School, a master's in astrophysics from the University of California, Berkeley, bachelor's degrees in astronomy and astrophysics, physics, German, and international studies from The Pennsylvania State University.

Allan Kardec de Almeida Junior obtained his bachelor in physics in (2011) from UNESP - Universidade Estadual Paulista. He obtained his master's degree in applied physics in 2014, using nonlinear dynamics tools to investigate molecular dissociation. He obtained his Ph.D. in Aerospace Engineering from the National Institute for Space Research (INPE) in 2018. Since then, he has investigated many problems related to astrodynamics as post-doctoral researcher for INPE. He studied the Theory of Functional Connections at Texas A&M University. Allan is currently a researcher at the Telecommunications Institute in Portugal.

Emma Louden is an American astrophysicist, strategist, and science communicator. Raised in Park City, UT, she spent many nights outside looking up at the Milky Way through the crisp and clear mountain air. After falling in love with the NASA rovers Spirit and Opportunity, Emma's astrophysics pathway launched quickly. Since then, Emma has graduated Magna Cum Laude from Princeton University and has been selected as a Brooke Owens Fellow and a Quad Fellow. As an astrophysics Ph.D. candidate at Yale University, Emma studies the geometry of exoplanetary systems. Emma uses the kind of thinking spurred by this inquiry to help humanity develop a consciousness that puts the earth in context and advances space exploration for the common good.

Emma also is a space strategy analyst and EarthDNA Ambassador. She co-founded the Ask-A-Brookie Mentorship program and serves on the American Astronomical Society Committee on Astronomy and Public Policy. Emma is deeply committed to sharing her passion for astronomy to spark curiosity and excitement in future scientists, especially minorities in STEM. She serves as a Young Professional Mentor for the Zed Factor Fellowship and a lead for the SSP Connect mentorship program for alumni of the Summer Science Program. Her expertise has been featured in talks at TEDx, Yale Law School, NPR, and the Jasper Dark Sky Festival. She was named one of the STEM Reinventors of the Year for 2021. She also serves on the Future Space Economy Webcast Advisory Board for SATELLITE. As a sought-after speaker, Emma travels worldwide as a steward of the story of the next era of space exploration, empowering the next generation of students in STEM.

Mauricio Martinez-Elizondo is an undergraduate senior majoring in Aerospace Engineering at the University of Texas at Austin. After enjoying a Spacecraft Dynamics class just as much as a History of Globalization course, he decided to pursue a history minor to complement his Aerospace Engineering studies and to focus on interdisciplinary research. Mauricio studies satellite engineering, orbital mechanics, and social sciences to further understand the role of space development in society. While looking for an intersection between space engineering and social studies, Mauricio came across space sustainability, which became his research interest. Mauricio joined the Space Enabled Group at the MIT Media Lab during the summer of 2022, where he applied orbital mechanics knowledge to develop methods to develop an open-source space sustainability rating system. He continues to collaborate with Space Enabled by working on the Identifiability Metric of the Detectability, Identifiability, and Trackability module of the Space Sustainability Rating. Mauricio will continue his academic career by pursuing graduate studies in Aerospace Engineering. He hopes to work on projects that aim to democratize space technology for a more equitable future in space.

Charlie McGillis is Vice President for Business Development, Government and Space, at Slingshot Aerospace. Ms. McGillis is responsible for developing strategy, expanding our business and product development activities, and gathering, prioritizing, and integrating product and service requirements for our customers with our product development efforts. Ms. McGillis has more than 30 years of defense and executive leadership experience.

She served twenty-six years in the United States Air Force as an Intelligence Officer, retiring in June 2014, at the rank of colonel. Following retirement, she served as a Commercial Integration Cell Liaison, representing seven Commercial Satellite Operators (Inmarsat; Intelsat General, SES-GS, Eutelsat America, Iridium, Digital Globe, XTAR, and Viasat) to facilitate better coordination and information sharing between the United States Government and the Commercial Satellite Operations Industry. Her broad defense career spanned a wide variety of leadership and staff positions. In her last assignment, she served as the Director of Intelligence at Fourteenth Air Force (Space) where she led all intelligence for Air Force space forces to support operations. In other assignments, she served as Deputy Chief of Staff at USSTRATCOM, Deputy Political Advisor at USSOCOM, and Deputy Director of the Commander's Action Group at NORAD-USNORTHCOM. She commanded at the squadron level at Air Command and Staff College where she led a multiservice and multinational unit. Ms. McGillis also held other intelligence related positions at the squadron, wing, NAF, and COCOM level.

Ms. McGillis received her Bachelor of Science Degree in Industrial Engineering from the Georgia Institute of Technology. She is also a graduate of three post graduate studies: Special Operations and Low Intensity Conflict from the Naval Postgraduate School, Military Arts and Sciences from the United States Army School of Advanced Military Studies, and Master of Strategic Studies from the United States Air Force Air War College.

Ms. McGillis is a defense operations and intelligence subject matter expert and speaks frequently at conferences about the value of situational intelligence and advancing space awareness. She is a member of the IAA committee on Space Traffic Management. She is also a champion for STEM initiatives for girls as a member of AstraFemina and teaches at two summer camps attended by 8th grade girls sponsored by American Association of University Women. She was also selected into the first cohort to support the SpaceHero Insider Program, a global community to advance space for humankind.

Andrea Muciaccia is a PhD candidate at the Politecnico di Milano, as part of the COMPAS group. Within his research, he is developing and implementing a metric to assess the impact of a space mission on the space environment and the characterization of a capacity concept to regulate the sustainability of the space, and he is investigating in-orbit fragmentations.

Adriana Ordóñez Lizarraga is a graduate student enrolled in the Master of Business Administration program at Embry-Riddle Aeronautical University (ERAU), O'Maley College of Business (OCOB) in Daytona Beach, Florida. Originally from Guatemala, Adriana has been studying in the United States since 2016. Adriana received her

bachelor's degree in Business Administration with a concentration in Management and a minor in Psychology with Summa Cum Laude honors in May of 2022. She serves as a Teaching Assistant for both undergraduate and graduate level finance and economics courses.

Ms. Ordonez has been captain of the Embry-Riddle Women's Soccer team and has competed at the NCAA DII level since 2018. She was the recipient of the Steve and Vicki Ridder scholarship which awards Embry-Riddle's female athlete of the year for academic achievement, campus and community involvement, personal holistic growth, and drive to excel in sport. She conducted research along other ERAU students on space debris mitigation from the business perspective. This effort was presented at the university level as well as at NCUR and Posters on the Hill at the national level. Adriana continues to pursue aerospace projects and to conduct research on the space programs in emerging economies. She will be graduating with her MBA this upcoming May.

Harvey Reed is the MITRE Blockchain Capability Lead, who champions the adoption of decentralization and blockchain across space, defense, and supply chain domains. In FY23 he is exploring using manufacturing domain ledgers to improve traceability of components across complex supply chains for NIST NCCOE. Recent space work includes SNARE (Sensor Network Autonomous Resilient Extensible) approach for decentralizing tasking of space sensors, now in operational prototype in the U.S. Space Force. Also, he is developing the emerging SISE (Space Information Sharing Ecosystems) concept and approach for sharing operational space safety and sustainability information. Related duties include chairing the Defense Decentralized Data Technology (D3T) Knowledge Community (D3T KC) for the DoD CTO Cyber office.

Prior to his decentralization efforts, Harvey supported OUSD to address cybersecurity reciprocity challenges in software reuse and assembly, and before that served as Chief Engineer for a \$1.2B U.S. Air Force IDIQ logistics and support infrastructure effort. Harvey has a B.S. from Purdue in Math and Computer Science, and an M.S. from Georgia Tech in Computer Science.

Thomas G. Roberts is a Graduate Research Fellow at the Massachusetts Institute of Technology's (MIT) Astrodynamics, Space Robotics, and Controls Laboratory and a PhD candidate in the Institute's Department of Aeronautics and Astronautics. He is also an adjunct fellow at the Center for Strategic and International Studies' Aerospace Security Project in Washington, D.C. Thomas' research interests include astrodynamics, space sustainability, and international space policy. He holds an SM in aeronautics and astronautics from MIT, an SM in technology and policy from MIT, and a BA in astrophysical sciences with honors from Princeton University. In 2015, he was named a Harry S. Truman Scholar. In 2021, he was awarded the National Science Foundation's Graduate Research Fellowship.

Allan Shtofenmakher is a PhD candidate at the Massachusetts Institute of Technology (MIT) performing research in the Dynamics, Infrastructure Networks, and Mobility (DINaMo) laboratory under the guidance of Prof. Hamsa Balakrishnan. His current research interests broadly reside at the intersection of space situational awareness (SSA) and control of multi-agent systems, with a focus on tracking orbital debris using in-space satellite sensors. In the past, he has researched novel CubeSat attitude control systems featuring smart actuators, lightweight spacecraft drag sail deployment mechanisms, and applications of game theory and Bayesian model estimation.

Prior to arriving at MIT, Allan worked as a spacecraft systems engineer on a number of small satellite programs, enabling the on-orbit demonstration of novel technologies such as the MIT Lincoln Laboratory TeraByte InfraRed Delivery (TBIRD) optical communication system, and as a stability and control engineer on blended wing body aircraft. He received an MS degree in Aeronautics and Astronautics from Stanford University, where he was honored with the Nicholas J. Hoff Award for Outstanding Master's Degree Student. He has a BS degree in Aerospace Engineering from the University of California, Irvine, as well as an AA in Teacher Education and an AA in Social and Behavioral Sciences from Irvine Valley College.

Allan currently has the honor of being a national Graduate Fellowships for STEM Diversity (GFSD) fellow as well as a NIST Graduate Student Measurement Science and Engineering fellow. He has previously been privileged to be a fellow of the Stanford University Graduate Engineering Fellowship, The Rose Hills Foundation Science and Engineering Graduate School Fellowship, and the Robert E. Gross/Lockheed Aircraft Corporation Fellowship.

Outside of lab, Allan advocates for graduate student mental health and coordinates social events within the AeroAstro department. In his free time, Allan enjoys cooking meals, crafting cocktails, and performing tricks on his skateboard—sometimes successfully.

Haley E. Solera is a GEM Research Fellow in the Astrodynamics, Robotics, and Controls Laboratory at the Massachusetts Institute of Technology and an S.M. candidate in the Department of Aeronautics and Astronautics. Her research interests include satellite characterization, maneuver prediction, and cooperative satellite clusters. Haley holds a B.S. in Electrical Engineering and a B.S. in Physics from the University of Arkansas and has a background in Orbital Mechanics and Astrodynamics.

Dr. Ruth Stilwell is the Executive Director of Aerospace Policy Solutions LLC, adjunct faculty at Norwich University, and one of the world's leading authorities on integrated space and aviation policy and governance. Her policy work focuses on accommodating new technologies and new entrants in civil airspace including the development of systems for upper class E traffic management (ETM) and Space Traffic Management (STM). Coauthor of *Introduction to Spaceports: Runways to Space*, and contributing author to *Global Space Governance*, Dr. Stilwell has also authored books on ATC Funding and the value of distributed infrastructure in risk mitigation.

A 25-year air traffic controller, experienced labor leader and policy expert, Dr. Stilwell is also an accomplished researcher and lecturer. Her numerous publications and presentations, which cover a wide range of space and aviation, public safety, human factor, administration, financing, and industry reform topics, have influenced key U.S. legislation and in many cases been required reading for administration officials. Dr. Stilwell's specific areas of expertise include: integrating commercial space operations in civil airspace; projecting air traffic controller retirement and staffing requirements; FAA funding and financing structures; workers' rights and more.

Dr. Stilwell served from 2010-2015 as the industry expert representing air traffic controllers on the International Civil Aviation Organization (ICAO) Air Navigation Commission. Her air traffic control experience includes 25 years of operational duty at the Miami Air Route Traffic Control Center, two years as liaison to the FAA Requirements Service, and six years as Executive Vice President of the National Air Traffic Controllers Association.

The founding chairperson of the Air Traffic Services Committee of the International Transport Workers Federation, a position she held for four years, Dr. Stilwell currently serves on the Technical Committee on Human Spaceflight Safety of the International Association for the Advancement of Space Safety, which is working to develop safety guidelines for human commercial spaceflight. Dr. Stilwell earned her BA in Labor Studies at the National Labor College and her MPA and DPA at the University of Baltimore.

Dr. Janet K. Tinoco is a systems engineer and Professor of Management and Marketing at Embry Riddle Aeronautical University, O'Maley College of Business (OCOB) in Daytona Beach, FL, US. Her expertise is in technical and strategic management, innovation and business policy, particularly with respect to defense and space systems. She has over 35 years of industry and academic experience in the US, Europe, and the Middle East. After graduating with her engineering degree, Dr. Tinoco became a systems integration engineer and technical manager of both foreign and domestic subcontractors for Lockheed Martin and then as a project engineer for Northrop-Grumman before leaving to pursue her PhD. Since her time at ERAU, she has been involved in space research, focusing her efforts on spaceports, as well as space debris mitigation from the business perspective. Dr. Tinoco has received

several academic research and industry awards, most notably the Lockheed Martin Corporation’s “top 100.” She has published in numerous academic journals, co-authored research reports for industry and government agencies, and is lead author on an introductory book on spaceports. Consequently, she has been an invited guest lecturer on spaceport development in the US and abroad.

William Woods is the lead scientist for space situational awareness for NorthStar’s U.S. company. He is currently focused on creating and delivering enhanced space situational awareness for the Department of Commerce and NASA and integrating NorthStar’s contribution into Department of Defense and Intelligence Community space domain awareness initiatives.

Prior to joining NorthStar’s U.S. team, Will served as the Entrepreneur in Residence at the Menlo Park, California-based venture capital firm Noosphere Ventures. At Noosphere, he led development of multiple U.S. and international satellite remote sensing programs within the firm’s considerable space portfolio.

While a Ph.D. candidate research assistant to Dr. Ivan Linscott in radar remote sensing at Stanford University, Will supported the New Horizons Mission to Pluto by investigating radio occultation and the effect of interplanetary media upon RF signal propagation. He also generated, analyzed, and simulated data from the radio science experiment (REX) onboard the spacecraft to include Pluto fly-by mission rehearsals performed at John’s Hopkins Applied Physics laboratory.

Like many Silicon Valley entrepreneurs, Will left the Stanford Ph.D. program to found and serve as Chief Technology Officer of start-up synthetic aperture radar company Capella Space. As CTO, Will led definition and assessment of Capella’s technology roadmap to ensure alignment with product needs, managed all engineering system interfaces to include spacecraft and ground system and their interactions. Capella has launched seven functional SAR satellites to date.

Will is a NASA “brat” whose father spent his career there and inspired an early passion for space that included stints as a student intern at the NASA Jet Propulsion Laboratory and Goddard Space Flight Center.

Will holds a Master of Science degree in Electrical Engineering obtained while a Ph.D. candidate in Professor Zebker’s Radar Remote Sensing Group. He is a Phi Beta Kappa graduate of Bucknell University where he concurrently was graduated with a Bachelor of Science in Electrical Engineering and Bachelor of Arts in East Asian Studies.