## Hao Chen

#### **CONTACT INFORMATION**

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Director, Complex Engineering Systems Lab: <a href="https://complex-systems-lab.com/">https://complex-systems-lab.com/</a>

#### ACADEMIC APPOINTMENTS

## Stevens Institute of Technology, Hoboken NJ

Assistant Professor, Aug. 2021 - Present

## Georgia Institute of Technology, Atlanta GA

Postdoctoral Fellow, Jul. 2021 - Aug. 2021

#### **EDUCATION**

## Georgia Institute of Technology, Atlanta GA Ph.D. in Aerospace Engineering

May 2021

Thesis: Interdisciplinary Space Logistics Optimization Framework for Large-Scale Space Exploration

Committee: Prof. Koki Ho (Chair), Prof. E. Glenn Lightsey, Prof. Brian Gunter, Prof. Christopher Carr, Prof. Harrison M. Kim Major/Minor: Aerospace Engineering (Major), Mathematics (Minor)

# University of Illinois Urbana-Champaign, Urbana IL M.S. in Aerospace Engineering

Aug. 2016

Sun Yat-sen University, Guangzhou China B.S. in Theoretical and Applied Mechanics

Jun. 2014

## AWARDS/SCHOLARSHIPS

• SSE Dean Research Incentive Award, Stevens Institute of Technology	
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2023

• Luigi G. Napolitano Award, International Astronautical Congress

2019

- ➤ Conferred every year to a young scientist who has significantly contributed to the advancement of the aerospace science.
- Mavis Future Faculty Fellowship (MF3), University of Illinois Urbana-Champaign
   2018-2019
- Warren W. Yee Memorial Fellowship, University of Illinois Urbana-Champaign 2017
- The First Prize Scholarship, Sun Yat-sen University 2012

#### **Book Chapters**

[B1] K. Ho, **H. Chen**, and T. Sarton du Jonchay, "Chapter 16: Mathematical Methods for Space Mission Planning and Architecture Design," in *The Planning and Execution of Human Missions to the Moon and Mars*, ed. Michelle Poliskie (Reston, VA: American Institute of Aeronautics & Ast., 2023), pp. 597-624.

#### **Submitted Journal Articles**

H. Lee, D. Rogers, B. Pearl, H. Chen, and K. Ho, "Deterministic Multi-stage Constellation Reconfiguration
Using Integer Linear Programing and Sequential Decision-Making Methods," *Journal of Spacecraft and Rockets*. (Under Review)

## **Journal Articles**

- [J1] Y. Takubo, **H. Chen,** and K. Ho, "<u>Hierarchical Reinforcement Learning Framework for Stochastic Spaceflight Campaign Design," *Journal of Spacecraft and Rockets*, Vol. 59, No. 2, pp. 421-433, 2022.</u>
- [J2] **H. Chen,** M. Ornik, and K. Ho, "Space Exploration Architecture and Design Framework for Commercialization," *Journal of Spacecraft and Rockets*, Vol. 59, No. 2, pp. 538-551, 2022.
- [J3] T. Sarton du Jonchay, **H. Chen**, M. Isaji, Y. Shimane, and K. Ho, "On-Orbit Servicing Optimization Framework with High- and Low-Thrust Propulsion Tradeoff," *Journal of Spacecraft and Rockets*, Vol. 59, No.1, pp. 33-48, 2022.
- [J4] **H. Chen,** B. Gardner, P. Grogan, and K. Ho, "Flexibility Management for Space Logistics via Decision Rules," *Journal of Spacecraft and Rockets*, Vol. 58, No. 5, pp. 1314-1324, 2021.
- [J5] T. Sarton du Jonchay, H. Chen, O. Gunasekara, and K. Ho, "<u>Framework for Modeling and Optimization of On-Orbit Servicing Operations Under Demand Uncertainties</u>," *Journal of Spacecraft and Rockets*, Vol. 58, No. 4, pp. 1157-1173, 2021.
- [J6] H. Chen, T. Sarton du Jonchay, L. Hou, and K. Ho, "Multifidelity Space Mission Planning and Infrastructure Design Framework for Space Resource Logistics," Journal of Spacecraft and Rockets, Vol. 58, No. 2, pp. 538-551, 2021.
- [J7] T. Sarton du Jonchay, H. Chen, Anna Wieger, Zoe Szajnfarber, and K. Ho, "Space Architecture Design for Commercial Suitability: A Case Study in In-Situ Resource Utilization Systems," Acta Astronautica, Vol. 175, pp. 45-50, 2020.
- [J8] **H. Chen,** T. Sarton du Jonchay, L. Hou, and K. Ho, "<u>Integrated In-Situ Resource Utilization System Design and Logistics for Mars Exploration</u>," *Acta Astronautica*, Vol. 170, pp. 80-92, 2020.
- [J9] **H. Chen**, H. Lee, and K. Ho, "Space Transportation System and Mission Planning for Regular Interplanetary Missions," *Journal of Spacecraft and Rockets*, Vol. 56, No. 1, pp. 12-20, 2019.
- [J10] Z. Chen, H. Chen, and K. Ho, "Analytical Optimization Methods for Space Logistics," Journal of Spacecraft and Rockets, Vol. 55, No. 6, pp. 1582-1586, 2018.
- [J11] **H. Chen** and K. Ho, "<u>Integrated Space Logistics Mission Planning and Spacecraft Design with Mixed-Integer Nonlinear Programming</u>," *Journal of Spacecraft and Rockets*, Vol. 55, No. 2, pp. 365-381, 2018.

#### **Conference Proceedings (Selected)**

- [C1] A. Abdul-Hamid and H. Chen, "Understanding System Level Impacts of Orbital Debris Management Using Empirical Dynamic Modeling," 2024 AIAA Science and Technology Forum and Exposition (AIAA SciTech Forum), Orlando, FL, Jan. 2024.
- [C2] **C. Chullen, I. Pena**, and **H. Chen**, "Technology Infusion in Spacesuits A Comparative System Analysis," 20<sup>th</sup> International Conference on Systems Engineering Research (CSER 2023), Hoboken, NJ, Mar. 2023.

- [C3] C. Chullen, I. Pena, K. Ganesan, and H. Chen, "Advanced Technology Infusion into Spacesuit Systems," *ASCEND 2022*, Las Vegas, NV & Virtual, no. AIAA 2022-4351, Oct. 2022.
- [C4] H. Lee, **H. Chen**, and K. Ho, "Maximizing Observation Throughput via Multi-Stage Satellite Constellation Reconfiguration," 2022 AAS/AIAA Astrodynamics Specialist Conference, Charlotte, NC, AAS 22-825, Aug. 2022.
- [C5] **H. Chen**, and H. Lee, "Distributed Space Resource Logistics System Optimization under Economies of Scale," *ASCEND 2021*, Las Vegas, NV & Virtual, no. AIAA 2021-4079, Nov. 2021.
- [C6] T. Sarton du Jonchay, Y. Shimane, M. Isaji, **H. Chen**, and K. Ho, "On-Orbit Servicing Logistics Framework Generalized to the Multi-Orbit Case," *AAS/AIAA Astrodynamics Specialist Conference*, Online, Aug. 2021.
- [C7] **H. Chen**, B. Gardner, P. Grogan, and K. Ho, "Flexibility Management for Space Logistics Through Decision Rules," *ASCEND 2020*, AIAA-2020-4187, Online, Nov. 2020.
- [C8] Y. Takubo, **H. Chen**, and K. Ho, "Performance Analysis of Hierarchical Reinforcement Learning Framework for Stochastic Space Logistics," *ASCEND 2020*, AIAA-2020-4230, Online, Nov. 2020.
- [C9] T. Sarton du Jonchay, H. Chen, O. Gunasekara, and K. Ho, "Rolling Horizon Optimization Framework for the Scheduling of On-Orbit Servicing Operations under Servicing Demand Uncertainties," ASCEND 2020, AIAA-2020-4131, Online, Nov. 2020.
- [C10] K. Ikeya, H. Sakamoto, H. Chen, and K. Ho, "Integrated Orbit Design and Network-Based Optimization of Interplanetary Mission Architectures," AIAA SciTech Forum 2020, AIAA 2020-0072, Orlando, FL, Jan. 2020.
- [C11] H. Chen, M. Ornik, and K. Ho, "Incentive Design for Commercial Participation in Space Logistics Infrastructure Development and Deployment," 70TH International Astronautical Congress, Washington D.C., United States, IAC-19,D3,1,6,x51353, Oct. 2019.
- [C12] H. Chen, T. Sarton du Jonchay, L. Hou, and K. Ho, "Space Resource Logistics for Human Exploration to Mars," 70TH International Astronautical Congress, Washington D.C., United States, IAC-19,A5,2,4,x49279, Oct. 2019.
- [C13] T. Sarton du Jonchay, H. Chen, A. Wieger, Z. Szajnfarber, and K. Ho, "Space System Architecting for Commercial Suitability: A Case Study in Cislunar Space Transportation," 70TH International Astronautical Congress, Washington D.C., United States, IAC-19,D3,4,4,x49785, Oct. 2019.
- [C14] A. Wieger, H. Chen, T. Sarton du Jonchay, K. Ho, and Z. Szajnfarber, "An Approach to Endogenously Incentivizing Commercial Participation through System Architecture Choices," 70TH International Astronautical Congress, Washington D.C., United States, IAC-19,D3,1,4,x52667, Oct. 2019.
- [C15] **H. Chen,** T. Sarton du Jonchay, L. Hou, and K. Ho, "Multi-Fidelity Space Mission Planning and Space Infrastructure Design Framework for Space Resource Logistics," *AIAA Propulsion & Energy Forum 2019*, Indianapolis, IN, no. AIAA 2019-4134, Sep. 2019.
- [C16] **H. Chen** and K. Ho, "Hierarchical Reinforcement Learning Framework for Space Exploration Campaign Design," *AIAA Propulsion & Energy Forum 2019*, Indianapolis, IN, no. AIAA 2019-4135, Sep. 2019.
- [C17] H. Chen, A. Lapin, T. Ukai, C. Lei, and K. Ho, "Optimization for Large-Scale Multi-Mission Space Campaign Design by Approximate Dynamic Programming," AIAA SPACE 2018 Conference and Exposition, Orlando, FL, no. AIAA 2018-5287, Sep. 2018.
- [C18] **H. Chen,** and K. Ho, "Multi-Actor Analysis Framework for Space Architecture Commercialization," *AIAA SPACE 2018 Conference and Exposition*, Orlando, FL, no. AIAA 2018-5410, Sep. 2018.
- [C19] **H. Chen,** K. Ho, B. Gardner, and P. Grogan, "Built-in Flexibility for Space Logistics Mission Planning and Spacecraft Design," *AIAA SPACE 2017 Conference and Exposition*, Orlando, FL, no. AIAA 2017-5348, Sep. 2017.
- [C20] H. Chen, H. Lee, and K. Ho, "Space Transportation System and Infrastructure Design for Regular Interplanetary Cargo Missions," AIAA SPACE 2017 Conference and Exposition, Orlando, FL, no. AIAA 2017-5197, Sep. 2017.

- [C21] Z. Chen, H. Chen, and K. Ho, "Analytical model of Space Infrastructure Staged Deployment Strategy in Space Logistics," AIAA SPACE 2017 Conference and Exposition, Orlando, FL, no. AIAA 2017-5349, Sep. 2017.
- [C22] K. Ho, **H. Chen**, and H. M. Kim, "Value of Bootstrapping Staged Deployment of Infrastructure: Case Study in Space Infrastructure Deployment," *ASME International Design Engineering Technical Conferences and Computers and Information in Engineering Conference*, Cleveland, OH, no. DETC2017-67610, Aug. 2017.
- [C23] H. Chen, and K. Ho, "Integrated Space Mission Planning and In-Orbit Infrastructure Design with Mixed-Integer Programming," AIAA SPACE 2016 Conference and Exposition, Long Beach, CA, no. AIAA 2016-5309, Sep. 2016.

## **Magazine Articles**

- [M1] H. Chen, and K. Ho, "Space Logistics A Burgeoning Commercial Market," *AIAA Aerospace America*, Dec. 2023.
- [M2] **H. Chen**, and K. Ho, "Development of On-Orbit Servicing, Assembly and Manufacturing Creates New Capabilities in Spacefaring Operations," *AIAA Aerospace America*, Dec. 2022.
- [M3] **H. Chen**, and K. Ho, "Gateway Leads the Era of Deep Space Infrastructure Development," *AIAA Aerospace America*, Dec. 2021.

## **Invited Conference/Workshop Presentations**

- [II] **H. Chen**, "The Grand Challenge of Space Logistics for Space Stations, Moon, and Mars," *Space Education & Strategic Applications 2023 Conference*, Online, Sep. 2023.
- [I2] **H. Chen**, and K. Ho, "Time-expanded Network for Long-Term Human Space Mission Planning," *INFORMS Annual Meeting*, National Harbor, MD, Nov. 2020.

#### **Conference Presentations**

- [P1] "Flexibility Management for Space Logistics Through Decision Rules," at ASCEND 2020, Online, Nov. 2020.
- [P2] "Incentive Design for Commercial Participation in Space Logistics Infrastructure Development and Deployment," at 70TH International Astronautical Congress, Washington D.C., United States, Oct. 2019.
- [P3] "Space Resource Logistics for Human Exploration to Mars," at 70TH International Astronautical Congress, Washington D.C., United States, Oct. 2019.
- [P4] "Multi-Fidelity Space Mission Planning and Space Infrastructure Design Framework for Space Resource Logistics," at *AIAA Propulsion & Energy Forum 2019*, Indianapolis, IN, Sep. 2019.
- [P5] "Hierarchical Reinforcement Learning Framework for Space Exploration Campaign Design," at *AIAA Propulsion & Energy Forum 2019*, Indianapolis, IN, Sep. 2019.
- [P6] "Optimization for Large-Scale Multi-Mission Space Campaign Design by Approximate Dynamic Programming," at *AIAA SPACE 2018 Conference and Exposition*, Orlando, FL, Sep. 2018.
- [P7] "Multi-Actor Analysis Framework for Space Architecture Commercialization," at *AIAA SPACE 2018 Conference and Exposition*, Orlando, FL, Sep. 2018.
- [P8] "Integrated Space Mission Planning and In-Orbit Infrastructure Design with Mixed-Integer Programming," at *AIAA SPACE 2016 Conference and Exposition*, Long Beach, CA, Sep. 2016.

## **Other Presentations**

- [P9] **H. Chen,** T. Sarton du Jonchay, L. Hou, and K. Ho, "Integrated Analysis Framework for Space Propellant Logistics: Production, Storage, and Transportation," Lunar ISRU Workshop, Columbia, MD, Jul. 2019.
- [P10] K. Ho and **H. Chen**, "Space Transportation Network Analysis for CisLunar Space Economy with Lunar Resources," Annual Meeting of the Lunar Exploration Analysis Group, Columbia, MD, Oct. 2017.
- [P11] T. Ukai, **H. Chen**, and K. Ho, "Optimization for Campaign-level Human Space Mission Design," INFORMS Annual Meeting, Houston, TX, Oct. 2017.

#### AWARDED RESEARCH FUNDING

Total awarded as a PI: \$346K. (My total share: \$337K)

## External grant

[G1] Space Logistics Analysis and Incentive Design for Commercialization of Orbital Debris Remediation

➤ Role: **PI** 

➤ Co-PI (WVU PI): Hang Woon Lee

Source: NASA

Period of Performance: Oct. 2023 – Oct. 2024.

> Amount: \$105,916

> Chen's share: 92% (\$97,357)

[G2] ERI: Representations of Complex Engineering Systems via Technology Recursion and Renormalization Group

Role: sole PISource: NSF

Period of Performance: Sep. 2023 – Aug. 2025.

Amount: \$199,997Chen's share: 100%

#### Internal grant

[G3] Real-time Brain State and Wellness Assessment Framework based on Multimodal EEG Platform

➤ Role: PI

Co-I (Stevens): Feng Liu and Zhongyuan (Annie) Yu

> Source: Stevens Institute of Technology (SSE Dean's Research Incentive Award)

> Period of Performance: Feb. 2023 – Feb. 2024.

> Amount: \$39,955

## POSTDOC/STUDENT ADVISING

• Ph.D. Thesis, Supervisor

#### In Progress

- ➤ Cinda Chullen (In Progress)
- > Asaad Abdul-Hamid (In Progress)
- > Amiratabak Bahengam (In Progress)
- Ph.D. Thesis, Committee Member

#### Completed

- ➤ Josue I. Tapia, "A Conceptual Mission Engineering Framework for Evaluating the Performance of Precipitation Observing Missions," Ph.D., Stevens Institute of Technology, 2023 (Advisor: Paul Grogan).
- M.S. Thesis, Supervisor

## In Progress

- **Evangelia Gkaravela** (In Progress)
- > Jaime Bardaji (In Progress)
- M.S. Thesis, Reader

## Completed

- ➤ Iser Pena, "Improving Satellite-Based Convective Storm Observations: An Operational Policy Based on Static Historical Data," M.S., Stevens Institute of Technology, 2023 (Advisor: Paul Grogan)
- M.S. Non-Thesis (Special Problem Advisee)

#### In Progress

- **Ronnie Melao**, M.S. (Non-Thesis; Special Problem); at Stevens, 2024.
- ➤ Albert Tan, M.S. (Non-Thesis; Special Problem); at Stevens, 2024.

## Completed

- ➤ **Brooke Cole**, M.S. (Non-Thesis; Special Problem); at Stevens, 2022.
- Matthew Crisman, M.S. (Non-Thesis; Special Problem); at Stevens, 2022.
- Nestor Mercado, M.S. (Non-Thesis; Special Problem); at Stevens, 2022.
- ➤ Iser Pena, M.S. (Special Problem); at Stevens, 2022.
- ➤ Harrup Singh, M.S. (Non-Thesis; Special Problem); at Stevens, 2022.
- **Benjamin Stanley**, M.S. (Non-Thesis; Special Problem); at Stevens, 2022.
- ➤ Jorge Alvarez-Jimenez, M.S. (Non-Thesis; Special Problem); at Stevens, 2022.
- **Ryan Burns**, M.S. (Non-Thesis; Special Problem); at Stevens, 2023.
- **Keishaun Griffin**, M.S. (Non-Thesis; Special Problem); at Stevens, 2023.
- Alan Hairston, M.S. (Non-Thesis; Special Problem); at Stevens, 2023.
- ➤ Christopher Rovatsos, M.S. (Non-Thesis; Special Problem); at Stevens, 2023.
- > Siddharth Lokhande, M.S. (Non-Thesis; Special Problem); at Stevens, 2023.
- Larissa Cottrill, Graduate Certificate (Special Problem); at Stevens, 2023.
- **Sean Duffy**, M.S. (Non-Thesis; Special Problem); at Stevens, 2023.
- ➤ Julia Dresser, M.S. (Non-Thesis; Special Problem); at Stevens, 2023.
- > Ryan Poust, M.S. (Non-Thesis; Special Problem); at Stevens, 2023.
- Undergraduate Students (Independent Study Advisee/Funded Student Researcher)
  - **Kaushikk Ganesan**, at the Stevens Institute of Technology, May 2022 Aug. 2022
  - > Christina Longo, at the Stevens Institute of Technology, May 2023 Present
- Other
  - > Iser Pena, Research Assistant Staff, Stevens Institute of Technology, Jun. 2023 Present

#### **TEACHING EXPERIENCE**

#### Stevens Institute of Technology, Hoboken NJ

Instructor

EM/ISE 322 Engineering Design VI (Undergraduate Level)

Spring 2024

EM/ISE 424 Engineering Design VIII (Undergraduate Level, Senior Design) Spring 2023, Spring 2024

EM/ISE 423 Engineering Design VII (Undergraduate Level, Senior Design)

Fall 2022, Fall 2023

SYS 640 System Supportability and Logistics (Graduate Level)

Fall 2021, Spring 2022, Fall 2022, Spring 2023, Fall 2023

#### Georgia Institute of Technology, Atlanta GA

Graduate Teaching assistant

AE 6353 Orbital Mechanics (Graduate Level)

Fall 2020

#### University of Illinois Urbana-Champaign, Urbana IL

Graduate Teaching assistant

AE 403 Spacecraft Attitude Control (Undergraduate/Graduate Level)

**Spring 2017, Spring 2019** 

AE 352 Aerospace Dynamical Systems (Undergraduate Level)

Fall 2017

## EDUCATIONAL INNOVATIONS AND CONTRIBUTIONS

Founding Faculty Advisor, Students for the Exploration and Development of Space (SEDS) at Stevens Institute of Technology, Sep. 2022 – Present

- Refined and improved course materials for EM and ISE senior design class (EM/ISE 423/424 Engineering Design VII/VIII) at Stevens Institute of Technology; the newly developed senior design course by Dr. Chen became highly interdisciplinary engaging 10-20 senior students from CHE, CPE, EE, EN, and ME each year. One senior design team won the First Prize in 2023 Ansary Entrepreneurship Competition.
- Faculty advisor for a student team at NASA RASC-AL Design Competition, Stevens Institute of Technology, 2022 and 2023.

#### **SERVICES**

#### University service

• Graduate Curriculum Committee, Stevens Institute of Technology, 2022 - Present.

## **School/Department service**

- Tenured/Tenure-track Faculty Search Committee, School of Systems and Enterprises, 2023 Present.
- Graduate Curriculum Committee, School of Systems and Enterprises, 2022 Present.
- EM/ISE Academic Committee, School of Systems and Enterprises, 2021 Present.

## Society Offices, Activities, and Membership

- AIAA Space Logistics Technical Committee
  - ➤ Vice Chair (effective May 2024).
  - > Chair of Conference Subcommittee, 2021-2024.
  - Member, 2018-present.
- Young Professional, American Institute of Aeronautics and Astronautics (AIAA)
- Member, International Council on Systems Engineering (INCOSE)
- Member, American Society of Mechanical Engineers (ASME)
- Member, Institute of Electrical and Electronics Engineers (IEEE)

## Organization and Chairmanship of Technical Sessions, Workshops, and Conferences

- AIAA ASCEND Technical Program
  - > Deputy Technical Program Chair, Space Exploration and Infrastructure, 2023-present.
  - > Space Logistics Topic Admin, 2021-2022.
- AIAA SciTech 2024 Forum and Exposition, Orlando, FL, Jan. 2024
  - > Session Chair, EXPL-12: Humans in Space Logistics, Medical issues, Bio-Research
  - Session Chair, EXPL-23: Lunar/Mars Exploration ISRU Operations
  - Session Chair, EXPL-26: Space Logistics (Joint Session with Space Logistics TC)
- 20<sup>th</sup> International Conference on Systems Engineering Research (CSER 2023), Hoboken, NJ, Mar. 2023
  - ➤ Technical Committee Co-Chair, Session Organizer
  - > Session Chair, Systems Modularity
- AIAA SciTech 2023 Forum and Exposition, National Harbor, MD & Online, Jan. 2023
  - Session Chair, EXPL-18: Robotic Precursor and Human Exploration Missions
  - > Session Chair, EXPL-21: Planetary Surface Interaction with Landing and Ground Robotics Systems
- ASCEND 2021 (AIAA) Conference, Las Vegas, NV & Online, Nov. 2021
  - > Session Organizer.
  - Session Chair, SLS-01: Space Logistics Campaign Planning
  - > Session Chair, SLS-02: Space Logistics Design for Commonality and Affordability
  - > Session Chair, SLS-03: Resilient Architectures and Space Logistics

## **Technical Journal or Conference Referee Activities**

- Review Coordinator & Reviewer, AIAA ASCEND 2024 Conference, Las Vegas, NV.
- Reviewer, AIAA SciTech 2024 Forum and Exposition, Orlando, FL.
- Reviewer, AIAA SciTech 2023 Forum and Exposition, National Harbor, MD & Online.
- Review Coordinator, 20<sup>th</sup> International Conference on Systems Engineering Research (CSER 2023), Hoboken, NJ.
- Review Coordinator & Reviewer, ASCEND 2021 (AIAA) Conference, Las Vegas, NV & Online.
- Reviewer, *Acta Astronautica*, 2022, 2023
- Reviewer, Journal of Spacecraft and Rockets, 2018, 2021, 2022, 2023, 2024
- Reviewer, Advances in Space Research, 2024
- Reviewer, Journal of Engineering Design, 2024
- Reviewer, *Aerospace*, 2021, 2022, 2023
- Reviewer, *Mathematics*, 2022, 2023
- Reviewer, Mathematical and Computational Applications, 2022
- Reviewer, Remote Sensing, 2023
- Reviewer, International Journal of Aerospace Engineering, 2023, 2024
- Reviewer, IEEE Transactions on Aerospace and Electronic Systems, 2021, 2022
- Reviewer, Transactions of the JSASS / Aerospace Technology Japan, 2019, 2020, 2022, 2023

## **Proposal Panels and Reviews**

- Fellow, National Science Foundation (NSF) CMMI's Game Changer Academies, 2022
- External Proposal Review Panel, Sandooq Al Watan (SW), Abu Dhabi, UAE, 2022 Present.
- NSF Proposal Review Panel, 2024