ABHINAV SINHA

♦ https://sinha-abhinav.github.io/ ■ abhinav.sinha@uc.edu in linkedin.com/in/drabhinavsinha 🕠 github.com/sinha-abhinav



Work Experience

Dec 2023- Present	University of Cincinnati, Cincinnati, USA Assistant Professor, Department of Aerospace Engineering and Engineering Mechanics
Dec 2021- Nov 2023	The University of Texas at San Antonio, San Antonio, USA Postdoctoral Fellow, Host: Dr. Yongcan Cao
May 2021- Nov 2021	Indian Institute of Technology Bombay, Mumbai, India Postdoctoral Fellow, Host: Dr. Shashi Ranjan Kumar
Jan 2019- May 2021	INDIAN INSTITUTE OF TECHNOLOGY BOMBAY, MUMBAI, INDIA Teaching Assistant AE 305: Flight Mechanics—II, Spring 2019, 2020, and 2021 AE 717: Aircraft Flight Dynamics, Spring 2019, 2020, and 2021 AE 410: Navigation and Guidance, Fall 2019, 2020, and 2021 AE 641: Introduction to Navigation and Guidance, Fall 2019, 2020, and 2021
Jun 2019- May 2018	CENTRAL SCIENTIFIC INSTRUMENTS ORGANISATION, CHANDIGARH, INDIA Research Student
Sep 2014- Jul 2016	TATA CONSULTANCY SERVICES LIMITED , PUNE, INDIA Assistant System Engineer, Consulting in Manufacturing, Automation and Control Systems
Nov 2015	TATA Consultancy Services Limited, Trivandrum, India Visiting faculty at TCS Global Learning Center

Jun 2011- Kalinga Institute of Industrial Technology, Bhubaneswar, India



EDUCATION

m Indian Institute of Technology Bombay

2018 - 2021

Doctor of Philosophy (Ph.D.), Aerospace Engineering

Advisor : Dr. Shashi Ranjan Kumar

INDIAN INSTITUTE OF ENGINEERING SCIENCE AND TECHNOLOGY

May 2014 | Instructor and Coordinator, KIIT Robotics Society

2016 - 2018

Master of Technology (M.Tech.), Mechatronics

Advisor: Dr. Ritesh Kumar (CSIR-CSIO), Dr. Rishemjit Kaur (CSIR-CSIO)

III KALINGA INSTITUTE OF INDUSTRIAL TECHNOLOGY

Bachelor of Technology (B.Tech.), Electronics and Instrumentation

Advisor: Dr. Rajiv Kumar Mishra



PUBLICATIONS

Refereed Journals – Published/In Press

- [J28] P. Ranjan, Abhinav Sinha, and Y. Cao, "Self-organizing Multiagent Target Enclosing under Limited Information and Safety Guarantees", IEEE Transactions on Aerospace and Electronic Systems, early access, 2024.
- [J27] P. Ranjan, Abhinav Sinha, Y. Cao, D. Casbeer, and I. Weintraub, "Relational Maneuvering of Leader-Follower Unmanned Aerial Vehicles for Flexible Formation", IEEE Transactions on Cybernetics, vol. 54, no. 10, pp. 5598-5609, 2024.
- [J26] Abhinav Sinha and S. R. Kumar, "Time-Critical Unified Rendezvous Guidance for an Unmanned Autonomous Vehicle", ASME Journal of Autonomous Vehicles and Systems, vol. 4, no. 3, pp. 031001 1-8, 2024.
- [J25] S. Kumar, Abhinav Sinha, and S. R. Kumar, "Robust Path-following Guidance for an Autonomous Vehicle in the Presence of Wind", Aerospace Science and Technology, vol. 150, pp. 109225, 2024.
- [J24] S. Kumar, S. R. Kumar, and Abhinav Sinha, "Three-Dimensional Path Following Nonlinear Guidance for Unmanned Aerial Vehicles", AIAA Journal of Guidance, Control, and Dynamics, vol. 47, no. 6, pp. 1231-1240, 2024.
- [J23] Abhinav Sinha and Y. Cao, "Three-Dimensional Autonomous Guidance for Enclosing a Stationary Target within Arbitrary Smooth Geometrical Shapes", IEEE Transactions on Aerospace and Electronic Systems, vol. 59, no. 6, pp. 9247-9256, 2023.
- [J22] Abhinav Sinha and Y. Cao, "Three-Dimensional Guidance Law for Target Enclosing Within Arbitrary Smooth Shapes", AIAA Journal of Guidance, Control, and Dynamics, vol. 46, no. 11, pp. 2224-2234, 2023.
- [J21] P. Ranjan, Abhinav Sinha, Y. Cao, D. Tran, D. Casbeer, and I. Weintraub, "Energy-efficient Ring Formation Control with Constrained Inputs", AIAA Journal of Guidance, Control, and Dynamics, vol. 46, no. 7, pp. 1397-1407, 2023.
- [J20] Abhinav Sinha and Y. Cao, "3-D Nonlinear Guidance Law for Target Circumnavigation", IEEE Control System Letters, vol. 7, pp. 655-660, 2023 (also accepted for presentation at 2023 American Control Conference, San Diego, California, USA).
- [J19] Abhinav Sinha, R. V. Nanavati, and S. R. Kumar, "Three-dimensional Nonlinear Impact Time Guidance using Predicted Interception Point", AIAA Journal of Guidance, Control, and Dynamics, vol. 46, no. 3, pp. 608-617, 2023.
- [J18] Abhinav Sinha, and Y. Cao, "Nonlinear Guidance Law for Target Enclosing with Arbitrary Smooth Shapes", AIAA Journal of Guidance, Control, and Dynamics, vol. 45, no. 11, pp. 2182-2192, 2022.
- [J17] Abhinav Sinha, and S. R. Kumar, "Cooperative target capture using predefined-time consensus over fixed and switching networks", Aerospace Science and Technology, vol. 127, pp. 107686, 2022. [Preprint available at arXiv:2109.01338]
- [J16] Abhinav Sinha, S. R. Kumar, and D. Mukherjee, "Three-agent Time-constrained Cooperative Pursuit-Evasion", Journal of Intelligent & Robotic Systems, vol. 104, no. 28, pp. 1–27, 2022. [Preprint available at arXiv:2106.01895]
- [J15] Abhinav Sinha, S. R. Kumar, and D. Mukherjee, "Cooperative integrated guidance and control design for simultaneous interception", Aerospace Science and Technology, vol. 120, pp. 107262, 2022.
- [J14] Abhinav Sinha, S. R. Kumar, and D. Mukherjee, "Impact time constrained integrated guidance and control design", Aerospace Science and Technology, vol. 115, pp. 106824, 2021.
- [J13] Abhinav Sinha, S. R. Kumar, and D. Mukherjee, "Nonsingular impact time guidance and control using deviated pursuit", Aerospace Science and Technology, vol. 115, pp. 106776, 2021.

- [J12] Abhinav Sinha, S. R. Kumar, and D. Mukherjee, "Cooperative Salvo Based Active Aircraft Defense Using Impact Time Guidance", *IEEE Control Systems Letters*, vol. 5, no. 5, pp. 1573–1578, 2021 (also accepted for presentation at 2021 American Control Conference, New Orleans, Louisiana, USA).
- [J11] Abhinav Sinha, S. R. Kumar, and D. Mukherjee, "Three-Dimensional Nonlinear Cooperative Salvo Using Event-Triggered Strategy", *AIAA Journal of Guidance, Control, and Dynamics*, vol. 44, no. 2, pp. 328–342, 2021.
- [J10] Abhinav Sinha, S. R. Kumar, and D. Mukherjee, "Three-Dimensional Guidance With Terminal Time Constraints for Wide Launch Envelops", *AIAA Journal of Guidance, Control, and Dynamics*, vol. 44, no. 2, pp. 343–359, 2021.
 - [J9] Abhinav Sinha, and S. R. Kumar, "Super-Twisting Control Based Cooperative Salvo Guidance Using Leader-Follower Approach", *IEEE Transactions on Aerospace and Electronic Systems*, vol. 56, no. 5, pp. 3556–3565, 2020.
 - [J8] Abhinav Sinha, and R. K. Mishra, "Consensus in first order nonlinear heterogeneous multi-agent systems with event-based sliding mode control", *International Journal of Control*, vol. 93, no. 4, pp. 858–871, 2020.
 - [J7] Abhinav Sinha, R. Kumar, R. Kaur and R. K. Mishra, "Consensus-Based Odor Source Localization by Multiagent Systems Under Resource Constraints", *IEEE Transactions on Cybernetics*, vol. 50, no. 7, pp. 3254–3263, 2020.
 - [J6] Abhinav Sinha, R. Kumar, R. Kaur and A. P. Bhondekar, "Consensus-Based Odor Source Localization by Multiagent Systems", *IEEE Transactions on Cybernetics*, vol. 49, no. 12, pp. 4450–4459, 2019.
 - [J5] R. K. Mishra, and Abhinav Sinha, "Event-triggered sliding mode based consensus tracking in second order heterogeneous nonlinear multi-agent systems", *European Journal of Control*, vol. 45, pp. 30–44, 2019.
 - [J4] T. Majumder, R. K. Mishra, Abhinav Sinha, S. S. Singh, and P. K. Sahu, "Robust congestion control in cognitive radio network using dynamic event-triggered sliding mode", *International Journal of Communication Systems*, vol. 33, no. 10, pp. e4206, 2019.
 - [J3] Abhinav Sinha, and R. K. Mishra, "Control of a nonlinear continuous stirred tank reactor via event triggered sliding modes", *Chemical Engineering Science*, vol. 187, pp. 52–59, 2018.
 - [J2] T. Majumder, R. K. Mishra, Abhinav Sinha, S. S. Singh, and P. K. Sahu, "Congestion Control in Cognitive Radio Networks with Event-triggered Sliding Mode", *AEU- International Journal of Electronics and Communication*, vol. 90, pp. 155–162, 2018.
 - [J1] Abhinav Sinha, and R. K. Mishra, "Nonlinear autonomous altitude control of miniature helicopter UAV based on sliding mode methodology", *International Journal of Electronics and Communication Technology*, vol. 61, spl.- 1, Jan- Mar 2015.

REFEREED JOURNALS— UNDER REVIEW/PREPARATION

- [j6] P. Ranjan, Abhinav Sinha, and Y. Cao, "3D Guidance Law for Flexible Target Enclosing with Inherent Safety", under review.
- [j5] S. Kumar, S. R. Kumar, and **Abhinav Sinha**, "Cooperative Nonlinear Guidance Strategies for Guaranteed Pursuit-Evasion", under review.
- [j4] Abhinav Sinha, D. Mukherjee, and S. R. Kumar, "Consensus-driven Deviated Pursuit for Guaranteed Simultaneous Interception of Moving Targets", under review.
- [j3] S. Kumar, S. R. Kumar, and **Abhinav Sinha**, "Trajectory Tracking for Unmanned Aerial Vehicles in 3D Spaces under Motion Constraints", under review.
- [j2] S. Kumar, S. R. Kumar, and **Abhinav Sinha**, "Three-dimensional Nonlinear Path-following Guidance with Bounded Input Constraints", under review.
- [j1] U. Siddique, **Abhinav Sinha**, and Y. Cao, "Fairness in Multi-Objective Preference-based Reinforcement Learning", under review

■ BOOK CHAPTERS

- [BC2] Abhinav Sinha, and R. K. Mishra, "Smooth sliding mode control of a nonlinear CSTR using an inverse hyperbolic function-based law, *Foundations and Frontiers in Computer, Communication and Electrical Engineering*, Taylor and Francis, 2016.
- [BC1] T. Majumder, Abhinav Sinha, R. K. Mishra, S. S. Singh, and P. K. Sahu, "Congestion control in Cognitive Radio Networks using fractional order rate reaching law based sliding modes, *Foundations and Frontiers in Computer, Communication and Electrical Engineering*, Taylor and Francis, 2016.

Peer Reviewed Conference Proceedings

- [C40] S. Bajpai, R. Boyinine, Abhinav Sinha, and R. Sharma, "Collaborative Localization and Guidance for Collaborative Combat Aircraft (CCA): Problem Formulation", *in Proc., Guidance, Navigation, and Control Conference (AIAA SciTech Forum)*, Orlando, USA, 6th-10th Jan 2025.
- [C39] S. Kumar, S. R. Kumar, and Abhinav Sinha, "Range-Only Geometric Guidance for Enclosing Moving Targets", in Proc., Guidance, Navigation, and Control Conference (AIAA SciTech Forum), Orlando, USA, 6th-10th Jan 2025.
- [C38] P. K. Ranjan, Abhinav Sinha, and Y. Cao, "Three-Dimensional Relational Maneuvering Guidance law for Flexible Leader-Follower Formation", in Proc., Guidance, Navigation, and Control Conference (AIAA SciTech Forum), Orlando, USA, 6th-10th Jan 2025.
- [C37] S. Bandela, Abhinav Sinha, and Y. Cao, "A Reinforcement Learning Approach to Target Capture in the Presence of a Defender", in Proc., Guidance, Navigation, and Control Conference (AIAA SciTech Forum), Orlando, USA, 6th-10th Jan 2025.
- [C36] M. Wu, U. Siddique, Abhinav Sinha, and Y. Cao, "Offline Reinforcement Learning with Failure Under Sparse Reward Environments", in Proc., 3rd International Conference on Computing and Machine Intelligence (ICMI), Mt. Pleasant (Michigan), USA, 13th-14th Apr 2024.
- [C35] U. Siddique, **Abhinav Sinha**, and Y. Cao, "On Deep Reinforcement Learning for Target Capture Autonomous Guidance", *in Proc., Guidance, Navigation, and Control Conference (AIAA SciTech Forum)*, Orlando, USA, 8th-12th Jan 2024.
- [C34] P. K. Ranjan, Abhinav Sinha, and Y. Cao, "Robust UAV Guidance Law for Safe Target Circumnavigation with Limited Information and Autopilot Lag Considerations", in Proc., Guidance, Navigation, and Control Conference (AIAA SciTech Forum), Orlando, USA, 8th-12th Jan 2024.
- [C33] Abhinav Sinha, D. White, and Y. Cao, "Deep Reinforcement Learning-based Optimal Time-constrained Intercept Guidance", in Proc., Guidance, Navigation, and Control Conference (AIAA SciTech Forum), Orlando, USA, 8th-12th Jan 2024.
- [C32] S. Kumar, Abhinav Sinha, and S. R. Kumar, "Generic Path-following Guidance for an Autonomous Vehicle", in Proc., Guidance, Navigation, and Control Conference (AIAA SciTech Forum), Orlando, USA, 8th-12th Jan 2024.
- [C31] S. Kumar, S. R. Kumar, and Abhinav Sinha, "Robust Nonlinear Control for Exact-time Stability of a Quadrotor UAV under Uncertainties", *in Proc., Guidance, Navigation, and Control Conference (AIAA SciTech Forum)*, Orlando, USA, 8th-12th Jan 2024.
- [C30] R. Tabiyar, Abhinav Sinha, and S. R. Kumar, "Decentralized Cooperative Guidance for Time-constrained Rendezvous with Non-Accelerating Targets", in Proc., 9th Indian Control Conference (ICC), Vishakhapatnam, India, 18th-20th Dec 2023.
- [C29] Abhinav Sinha, and Y. Cao, "Three-dimensional Nonlinear Guidance Law for Target Circumnavigation", in Proc., American Control Conference (ACC), San Diego, USA, 31st May-2nd Jun 2023.
- [C28] Abhinav Sinha, and Y. Cao, "A Nonlinear Guidance Law for Target Enclosing with Arbitrary Smooth Shapes", in Proc., Guidance, Navigation, and Control Conference (AIAA SciTech Forum), National Harbor, USA, 23rd-27th Jan 2023.

- [C27] P. K. Ranjan, Abhinav Sinha, Y. Cao, D. Tran, D. Casbeer, and I. Weintraub, "Energy-efficient Ring Formation Control with Constrained Inputs", *in Proc., Guidance, Navigation, and Control Conference (AIAA SciTech Forum)*, National Harbor, USA, 23rd-27th Jan 2023.
- [C26] S. Kumar, S. R. Kumar, and **Abhinav Sinha**, "Robust Path-following Guidance for an Unmanned Vehicle", *in Proc., Guidance, Navigation, and Control Conference (AIAA SciTech Forum)*, National Harbor, USA, 23rd-27th Jan 2023.
- [C25] Abhinav Sinha, and S. R. Kumar, "Nonsingular Impact Time Guidance and Control Co-design against a Stationary Target", *in Proc., Guidance, Navigation, and Control Conference (AIAA SciTech Forum)*, National Harbor, USA, 23rd-27th Jan 2023.
- [C24] Abhinav Sinha, R. V. Nanavati, and S. R. Kumar, "Three-dimensional Nonlinear Impact Time Guidance using Predicted Interception Point", *in Proc., Guidance, Navigation, and Control Conference (AIAA Sci-Tech Forum)*, National Harbor, USA, 23rd-27th Jan 2023.
- [C23] S. Kumar, S. R. Kumar, and **Abhinav Sinha**, "Separate Guidance and Control Design for Autonomous Path-following", *in Proc.*, 22nd IFAC International Symposium on Automatic Control in Aerospace (ACA), Mumbai, India, 21st-25th Nov 2022.
- [C22] S. K. Singh, Abhinav Sinha, and S. R. Kumar, "Nonlinear Control Design for an Unmanned Aerial Vehicle for Path Following", *IFAC PapersOnLine*, vol. 55, no. 1, pp. 592–597, 2022.
- [C21] Iftisam, Abhinav Sinha, and S. R. Kumar, "Three-dimensional Nonlinear Impact Time Guidance Accounting for Autopilot Lag", *IFAC PapersOnLine*, vol. 55, no. 1, pp. 26–31, 2022.
- [C20] Abhinav Sinha, R. V. Nanavati, and S. R. Kumar, "Impact Angle Constrained Integrated Guidance and Control for a Dual-controlled Interceptor", *in Proc.*, 7th Indian Control Conference (ICC), Mumbai, India, 20th-22nd Dec 2021.
- [C19] Abhinav Sinha, and S. R. Kumar, "Cooperative Target Capture using Predefined-time Consensus", in *Proc., 7th Indian Control Conference (ICC)*, Mumbai, India, 20th-22nd Dec 2021.
- [C18] Abhinav Sinha, S. R. Kumar, and D. Mukherjee, "Cooperative Salvo Based Active Aircraft Defense using Impact Time Guidance", *in Proc., American Control Conference (ACC)*, New Orleans, USA, 25th-28th May 2021.
- [C17] Abhinav Sinha, S. R. Kumar, and D. Mukherjee, "Integrated Guidance and Control For Dual Control Interceptors Under Impact Time Constraint", in Proc., Guidance, Navigation, and Control Conference (AIAA SciTech Forum), Virtual Event, 11th-15th and 19th-21st Jan 2021.
- [C16] Abhinav Sinha, S. R. Kumar, and D. Mukherjee, "Three-Dimensional Nonlinear Impact Time Guidance for Stationary Targets", *in Proc., American Control Conference (ACC)*, Denver, USA, 1st-3rd Jul 2020.
- [C15] Abhinav Sinha, D. Mukherjee, and S. R. Kumar, "Deviated Pursuit based Cooperative Simultaneous Interception against Moving Targets", *in Proc., American Control Conference (ACC)*, Denver, USA, 1st-3rd Jul 2020.
- [C14] H. Bishwash, Abhinav Sinha, and S. R. Kumar, "Deviated Pursuit Based Nonlinear Impact-Time Guidance with Finite-Time Convergence", *IFAC PapersOnLine*, vol. 53, no. 1, pp. 93–98, 2020, Awarded Best Paper.
- [C13] Abhinav Sinha, and S. R. Kumar, "Super-Twisting Control Based Impact Time Constrained Guidance", in Proc., Guidance, Navigation, and Control Conference (AIAA SciTech Forum), Orlando, USA, 6th-10th Jan 2020.
- [C12] Abhinav Sinha, S. R. Kumar, and D. Mukherjee, "Consensus Based Nonlinear Guidance for Cooperative Salvo", *in Proc.*, 6th Indian Control Conference (ICC), Hyderabad, India, 18th-20th Dec 2019.
- [C11] Abhinav Sinha, R. Kumar, and R. Kaur, "Resource Efficient Control Strategy for Consensus Based Odour Source Localisation by Multiagent Systems", accepted, 2018 IEEE Symposium Series on Computational Intelligence, Bengaluru, India, 18th-21st Nov 2018.
- [C10] Abhinav Sinha, and R. K. Mishra, "Convergence of multi-agent systems to unknown source of an odor", in Proc., 2018 IEEE 3rd International Conference for Convergence in Technology, Pune, India, 7th-8th Apr 2018.

- [C9] Abhinav Sinha, and R. K. Mishra, "Temperature regulation in a Continuous Stirred Tank Reactor using event triggered sliding mode control", *IFAC PapersOnLine*, vol. 51, no. 1, pp. 401–406, 2018.
- [C8] T. Majumder, Abhinav Sinha, R. K. Mishra, S. S. Singh, and P. K. Sahu, "Robust nonlinear congestion controller for time delayed and uncertain cognitive radio based wireless network", *in Proc., 2015 IEEE Power, Communication and Information Technology Conference (PCITC)*, Bhubaneswar, India, 15th-17th Oct 2015.
- [C7] Abhinav Sinha, and R. K. Mishra, "Sliding mode controller design for high performance of permanent magnet stepper motor", in Proc., 2015 IEEE International Conference on Innovations in Information, Embedded and Communication Systems (ICIIECS), Coimbatore, India, 19th-20th Mar 2015.
- [C6] Abhinav Sinha, and R. K. Mishra, "Robust altitude tracking of a miniature helicopter UAV based on sliding mode", in Proc., 2015 IEEE International Conference on Innovations in Information, Embedded and Communication Systems (ICIIECS), Coimbatore, India, 19th-20th Mar 2015.
- [C5] T. Majumder, Abhinav Sinha, R. K. Mishra, S. S. Singh, and P. K. Sahu, "Robust nonlinear congestion controller for cognitive radio based wireless network", in Proc., 2015 IEEE International Conference on Innovations in Information, Embedded and Communication Systems (ICIIECS), Coimbatore, India, 19th-20th Mar 2015.
- [C4] Abhinav Sinha, R. K. Mishra, and S. Jaiswal, "Robust and Smooth Nonlinear Control of an Industrial Robot for Automated Pick and Place", in Proc., 2015 IEEE International Conference on Computing Communication Control and Automation (ICCUBEA), Pune, India, 26th-27th Feb 2015, Awarded Best Paper.
- [C3] Abhinav Sinha, P. Prasoon, P. K. Bharadwaj, and A. C. Ranasinghe, "Nonlinear Autonomous Control of a Two-Wheeled Inverted Pendulum Mobile Robot Based on Sliding Mode", *in Proc., 2015 IEEE International Conference on Computational Intelligence and Networks (CINE)*, Bhubaneswar, India, 12th-13th Jan 2015.
- [C2] A. C. Ranasinghe, K. Rasnayake, **Abhinav Sinha**, and K. K. Rasnayake, "Perturbing effect compensation technique for smart sensors", *in Proc.*, 7th IEEE International Conference on Information and Automation for Sustainability (ICIAfS), Colombo, Sri Lanka, 22nd-24th Dec 2014.
- [C1] Abhinav Sinha, and R. K. Mishra, "Smooth sliding mode controller design for robotic arm", in Proc., 2013 International Conference on Control, Automation, Robotics and Embedded Systems (CARE), Jabalpur, India, 16th-18th Dec 2013.

OTHERS

- [A4] S. Kumar, S. R. Kumar, and Abhinav Sinha, "Three-Dimensional Nonlinear Path-Following Guidance for UAVs", in 8th Cyber-Physical Systems Symposium, Bangalore, India, 25th Jul-27th Jul 2024.
- [A3] U. Siddique, Abhinav Sinha, and Y. Cao, "Fairness in Preference-based Reinforcement Learning", in 41th International Conference on Machine Learning (ICML) Workshop: The Many Facets of Preference-Based Learning, Honolulu, USA, 26th Jul-27th Jul 2023.
- [A2] Abhinav Sinha, S. R. Kumar, and D. Mukherjee, "Integrated Guidance and Control Design For Time-Constrained Interception", *IEEE TechRxiv*, 2020.
- [A1] Abhinav Sinha, R. Kaur, R. Kumar, and A. P. Bhondekar, "Cooperative control of multi-agent systems to locate source of an odor", arXiv:1711.03819, arXiv e-prints, 2017.

Courses Taught/Offered

- > AEEM 9074 : Control of Networked Cyber-Physical Systems, Spring 2025
- > AEEM 5115/6015: Modern Control, Spring 2025
- > AEEM 4042 : Fundamentals of Control Theory, Fall 2024
- > AEEM 9074: Introduction to Navigation and Guidance, Fall 2024
- > AEEM 2013: Introduction to Systems Engineering, Spring 2024

PROFESSIONAL SERVICES

REVIEWER OF REFEREED JOURNALS

- > IEEE Transactions on Automatic Control
- > Automatica
- > International Journal of Control
- > IEEE Transactions on Control Systems Technology
- > International Journal of Robust and Nonlinear Control
- > Systems and Control Letters
- > IEEE Transactions on Control of Network Systems
- > IEEE Transactions on System, Man and Cybernetics: Systems
- > IEEE Transactions on Cybernetics
- > Journal of The Franklin Institute
- > European Journal of Control
- > IET Control Theory and Applications
- > AIAA Journal of Guidance, Control, and Dynamics
- > IEEE Control Systems Letters
- > IEEE Robotics and Automation Letters
- > IEEE Transactions on Fuzzy Systems
- > IEEE Transactions on Aerospace and Electronic Systems
- > Journal of Intelligent & Robotic Systems
- > Aerospace Science and Technology
- > IEEE Transactions on Neural Networks and Learning Systems
- > Asian Journal of Control
- > Information Sciences
- > ASME Journal of Dynamic Systems, Measurement, and Control
- > IEEE Transactions on Industrial Electronics
- > IEEE Transactions on Industrial Informatics
- > ISA Transactions
- > Journal of Process Control
- > IEEE Access
- > Defence Technology
- > IEEE Systems Journal
- > IEEE Sensors Letters
- > Nonlinear Dynamics
- > Advances in Space Research
- > IET Generation, Transmission and Distribution
- > Chemical Engineering Science
- > Asia Pacific Journal of Chemical Engineering
- > Journal of Computational Science
- > Neurocomputing
- > Swarm Intelligence
- > IET Power Electronics
- > Journal of Aerospace Engineering
- > IEEE Journal of Emerging and Selected Topics in Industrial Electronics
- > Plos One
- > The Aeronautical Journal
- > The Journal of the Astronautical Sciences
- > IEEE Journal of Oceanic Engineering

REVIEWER OF PEER REVIEWED CONFERENCES (SELECTED)

- > American Control Conference (ACC)
- > Control and Decision Conference (CDC)
- > Indian Control Conference (ICC)
- > European Control Conference (ECC)
- > AIAA SciTech Forum
- > IFAC World Congress
- > IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)
- > International Workshop on Variable Structure Systems and Sliding Mode Control (VSS)
- > International Conference on Control, Decision and Information Technologies (CoDIT)
- > International Conference on Control and Automation (ICCA)
- > Mediterranean Conference on Control and Automation (MED)
- > International Conference on Unmanned Aircraft Systems (ICUAS)
- > IFAC Advances in Control and Optimization of Dynamical Systems (ACODS)
- > IFAC Symposium on Automatic Control in Aerospace (ACA)
- > IEEE Conference on Control Technologies and Applications (CCTA)
- > International Conference on Automation and Computing

ACTIVITIES OF TECHNICAL COMMITTEES

- > Sub-committee Chair (Membership/Website, 2023-Present) of the IEEE CSS TC on Manufacturing Automation and Robotic Control
- > Chair of Session on GNC-26/IS-24: Guidance, Navigation, and Control in Intelligent Systems at the AIAA 2025 SciTech Forum, Orlando, USA, 6th Jul-10th Jan 2025.
- > Organizer (co-organizer: Yongcan Cao, UTSA) of Invited Session on Synergistic Strategies in Robotics, Optimization, Learning, and Safety for Cyber-Physical and Cyber-Physical-Human Systems at the American Control Conference (ACC), Denver, USA, 8th Jul-10th Jul 2025.
- > Organizer (co-organizers: Yongcan Cao, UTSA and Xiaocong Li, Harvard University/A*STAR Singapore) of Session on Control Technologies and Solutions for Sustainable Energy Systems at the IEEE CSS Day 2024.
- > Organizer (co-organizers: Yongcan Cao, UTSA and David Casbeer, AFRL) of Invited Session on Control of Cyber-Physical Systems: Multidisciplinary Approaches in Robotics, Autonomy, Optimization, and Safety at the American Control Conference (ACC), Toronto, Canada, 8th Jul-12th Jul 2024.
- > Chair of Invited Session on Control of Cyber-Physical Systems: Multidisciplinary Approaches in Robotics, Autonomy, Optimization, and Safety at the American Control Conference (ACC), Toronto, Canada, 8th Jul-12th Jul 2024.
- > Organizer (co-organizers: Yongcan Cao, UTSA and Eloy Garcia, AFRL) of Invited Session on Methods in Robotics, Optimization, Learning, and Safety for Control of Cyber-Physical Systems at the American Control Conference (ACC), San Diego, USA, 31st May-2nd Jun 2023.
- > Co-chair, Session on Aerospace at the American Control Conference (ACC), San Diego, USA, 31st May-2nd Jun 2023.

🍄 Professional Memberships

- > Life Member, IITB Alumni Association
- > Senior Member, Institute of Electrical and Electronics Engineers (IEEE)
- > Member, IEEE Aerospace and Electronic Systems Society (AESS)
- > Member, IEEE Control Systems Society (CSS)
- > Member and Sub-committee chair, IEEE CSS Technical Committee on Manufacturing, Automation, and Robotic Control
- > Member, IEEE CSS Technical Committee on Aerospace Controls
- > Member, IEEE CSS Technical Committee on Automotive Controls
- > Member, IEEE CSS Technical Committee on Control Education
- > Member, International Federation of Automatic Control (IFAC)

- > Senior Member, American Institute of Aeronautics and Astronautics (AIAA)
- > Member, IFAC Automatic Control and Dynamic Optimization Society (ACDOS)
- > Member, Asian Control Association

Y AWARDS, ACHIEVEMENTS AND HONORABLE MENTIONS

> Naik and Rastogi Award for Excellence in Ph.D. Research Indian Institute of Technology Bombay, India	Aug 2022
> ACC STUDENT TRAVEL GRANT American Automatic Control Council, USA	May 2021
> ACC STUDENT TRAVEL GRANT American Automatic Control Council, USA	JUN 2020
> ICC STUDENT SUPPORT Indian Control Conference and IEEE-CSS	DEC 2019
> MHRD Postgraduate GATE Fellowship for Ph.D. Ministry of Human Resource Development, India	Jul 2018 - Apr 2021
> MHRD Postgraduate GATE Fellowship for M.Tech Ministry of Human Resource Development, India	Jul 2016 - Jun 2018
> CHAMPIONS OF INITIAL LEARNING PROGRAMME (ILP) TATA Consultancy Services Limited	DEC 2015
> On The Spot Award TATA Consultancy Services Limited	JUL 2015
> Outstanding Contribution Award KIIT Robotics Society, Kalinga Institute of Industrial Technology	Aug 2013