

2025 International Conference on Unmanned Aircraft Systems

The 2025 International Conference on Unmanned Aircraft Systems (ICUAS 2025) took place in Charlotte, NC, USA. The conference venue was the Popp-Martin Student Union at the University of North Carolina at Charlotte (UNCC). UNCC was one of the sponsors of the event, along with the University of South Carolina, the University of Denver, and the University of Zagreb. The conference was technically supported by the IEEE Control Systems Society (CSS) and IEEE Robotics and Automation Society (RAS), by the Mediterranean Control Association (MCA), and the ICUAS Association.

ICUAS 2025 spanned four days; the three-day technical conference took place on 14–16 May, while the last day, 17 May, was reserved for tutorials and workshops. The conference was attended by more than 200 participants, representing academia, industry, government agencies, lawyers, policy-makers, manufacturers, students, and end-users.

ICUAS 2025 focused on: aerial manipulation; morphological designs of aerial robots; bio-inspired aerial robots; unmanned aerial vehicle (UAV) design for resilience; multimode unmanned platforms; multi-UAV systems; learning-based perception, navigation, and control; autonomy; human factors and ethical artificial intelligence (AI) for aerial robots; and regulations and policies for autonomous operations.

The technical program was composed of 158 peer-reviewed papers (contributed and invited) from 33 countries: Argentina, Australia, Austria, Brazil, Canada, China, Colombia, Croatia, Cyprus, Denmark, France, Germany, Greece, India, Israel, Italy, South Korea, Mexico, The Netherlands, New Zealand, Norway, Poland, Portugal, Qatar, Russia,

Singapore, Spain, Sweden, Switzerland, Türkiye, United Arab Emirates, United Kingdom, and the USA. The paper review process was very thorough, and, as in previous years, all papers were also checked following the *iThenticate Document Viewer Guide* before a final decision was made. The three-day technical conference included 23 regular sessions, three invited sessions, and two Best Paper Award sessions (Figures 1 and 2).

The ICUAS 2025 Best Paper Award was given to Jess Stephenson, William S. Stewart, and Melissa Greeff, Queen's University, for their paper titled "A Time and Place to Land: Online Learning-Based Distributed MPC for Multirotor Landing on Surface Vessel in Waves."

The Africa–Latin America (A-LA-TAM) Best Paper Award was given to G. Torre, C. L. Pose, and J. I. Giribet, Universidad De San Andres and Universidad De Buenos Aires, for their paper titled "Propeller Damage Detection: Adapting Models to Diverse UAV Sizes."

The conference included two half-day workshops and tutorials that were offered on 17 May, focusing on:

- » Modeling, Autonomous Navigation and Control of Multirotor

UAVs: Merging Conventional and Proposed New Methodologies.

- » Embodied-AI for Aerial Robots: What do we need for full autonomy?

Moreover, ICUAS 2025 included three plenary lectures given by leading authorities in their fields:

- » *Shields up: Building Defense Minded UAVs*, Dr. David Casbeer, Air Force Research Laboratory–Aerospace Systems Directorate
- » *Fast, Efficient, and Robust Autonomy for Unmanned Aerial Systems*, Dr. Jonathan How, Massachusetts Institute of Technology
- » *What's the Problem? Challenges in Multirotor Research*, Dr. Pauline Pounds, University of Queensland.

An integral component of the annual Conference is the UAV Competition, which is student-focused and student-centered, and offers unique opportunities for students to test and compare their skills with those of their peers worldwide.

This year, the UAV competition was sponsored by two Platinum Sponsors, Bitcraze and Natural-Point. Bitcraze supplied a fleet of Crazyflies, spare parts, and their



FIGURE 1 Conference committee members with keynote speaker Dr. Jonathan How. From left to right: Drs. Jonathan How, Marco Tognon, Nitin Sanket, Salua Hamaza, Nikos Vitzilaos, and Artur Wolek.

locomotion tracking system, while NaturalPoint supplied and installed its OptiTrack motion capture system for the competition.

The UAV competition was organized in two stages: simulation qualifiers and in-person finals. This year, the UAV competition focused on

deploying a team of UAVs in an urban environment to locate and identify (potential) threats. UAVs were deployed from a “base,” and they needed to



FIGURE 2 Dr. Artur Wolek introducing keynote speaker Dr. David Casbeer.

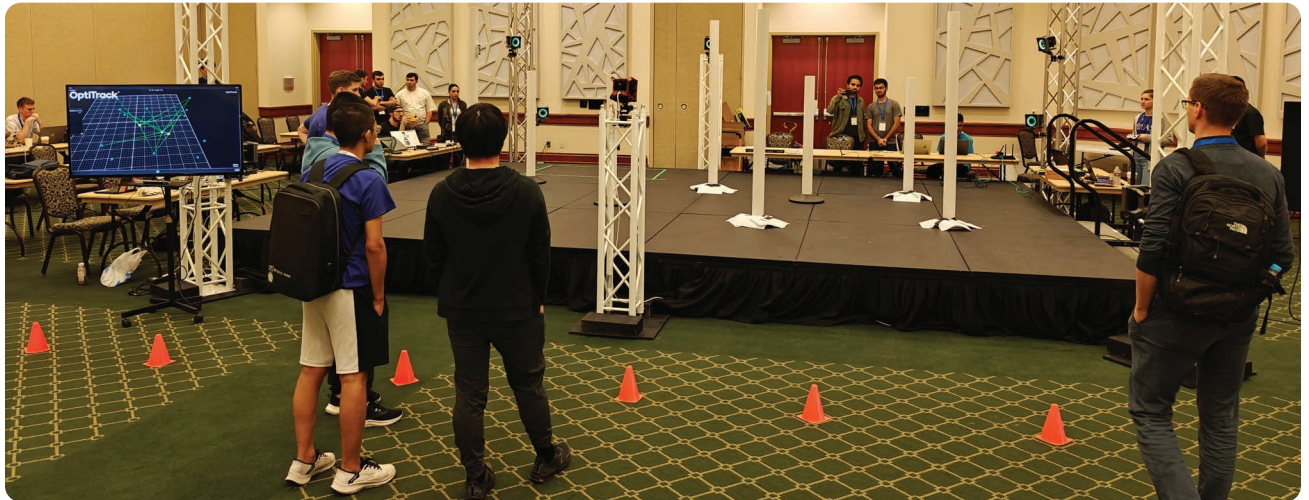


FIGURE 3 View of the UAV competition arena.



FIGURE 4 Conference participants during the UAV competition finals.



FIGURE 5 Conference attendees enjoying the Gala Dinner.



FIGURE 6 The program chairs with the Best Paper Award winners.



FIGURE 7 The program chairs with the A-LATAM Best Paper Award Winner.

find and identify several targets in a known environment. Since some threats could interfere with communication links between the UAV agents, the UAV team was required to maintain constant communication between the base and all UAV agents (Figure 3).

To make the competition challenging, each solution was evaluated following a two-phase process and two different “worlds,” i.e., two working environments. The first working environment was given to the teams during the simulation phase; however, the second working environment was not seen by the teams. Following a rigorous evaluation procedure, five teams qualified for the real-time finals (Figure 4):

- » *AIRo Lab*, The Hong Kong Polytechnic University, China
- » *Center for Scientific Innovation and Education - CSIE*, Armenia
- » *Aerial Robotics IITK*, Indian Institute of Technology, Kanpur, India
- » *AGH AVADER*, AGH University of Krakow, Poland
- » *KNU ARRF*, Kyungpook National University, South Korea.

The Aerial Robotics IITK team won the UAV competition. The team members were Prof. Ketan Rajawat (advisor), Pulak Gautam (leader), Varun Sappa, Vihaan Sapra, Akshat Jain, Shvetang Rao, Ayyappan Atulya Sundaram, Shruti Dalvi, Aman Singh Gill, Anmoldeep Singh Dhillon, and Sanskar Yaduka (members).

The Technical Conference was complemented by a social agenda that allowed participants to interact with one another and mix business and pleasure. Overall, ICUAS 2025 was a successful event (Figure 5–7).

The ICUAS 2026 will take place in Corfu, Greece, at the luxurious Divani Corfu Palace, www.divanicorfuhotel.com. The conference dates are 15–18 June. Mark your calendars and plan ahead! The location is ideal to mix business and pleasure.

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