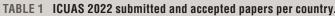# 2022 International Conference on Unmanned Aircraft Systems

The 2022 International Conference on Unmanned Aircraft Systems (ICUAS 2022) took place in Dubrovnik, Croatia, on June 21–24. The venue was the luxurious hotel Valamar Lacroma. ICUAS 2022 was planned throughout to be a mainly "physical presence" meeting, also allowing for a virtual presence. As such, we took all necessary steps to organize a successful hybrid conference. The results proved we were correct. ICUAS 2022 was attended by 241 physically present participants and more than 70 virtual attendees.

We capitalized on our prior experience in organizing and handling hybrid nature conferences. We had an "open channel" of information with all interested parties and provided clear steps for both physical and virtual attendance. We offered recommendations for playback video presentations, although we encouraged live video presentations. We assembled a technical program that considered the different time zones of virtual paper presentations and attendees. We used Zoom for the business platform, which proved again to be reliable. Each session was coordinated by the

TABLE 1   ICUAS 2022 submitted and accepted papers per country.

Country	Submitted	Accepted	Country	Submitted	Accepted
United States	43	39	Greece	3	3
Spain	14	13	Iran	3	1
Canada	13	11	Portugal	3	3
Germany	12	10	Russia	3	2
China	11	7	Belgium	2	1
France	11	8	The Netherlands	2	2
Norway	11	11	Romania	2	1
Brazil	10	8	Switzerland	2	1
India	10	7	Costa Rica	1	0
Italy	10	9	Ecuador	1	1
Mexico	9	6	Egypt	1	0
Cyprus	8	8	Finland	1	1
Poland	7	4	Israel	1	0
Singapore	7	4	Japan	1	0
Croatia	6	6	Lebanon	1	1
Czech Republic	6	6	Luxembourg	1	1
Korea, South	5	4	New Zealand	1	1
Turkey	5	3	Sweden	1	1
United Kingdom	5	5	United Arab Emirates	1	1
Austria	4	3	**Totals**	245	200
Denmark	4	4			
Australia	3	3			

A novel aspect of ICUAS 2022 was the UAV competition, in which five teams participated in the finals. Their goal was to score points by throwing balls in a basket with a drone. The teams had to solve several challenging problems involving computer vision, trajectory planning, and navigation.

session chair and/or cochair, and it was monitored by a graduate student volunteer (who was physically present in the corresponding meeting room). Audio was handled properly, without issues. All technical sessions ran smoothly without interruptions. We did not face

ICUAS 2022 was attended by 241 physically present participants and more than 70 virtual attendees.

Even though COVID-19 is still present in our lives, both the technical sessions and keynote talks attracted many participants. We provided clear steps for both physical and virtual attendance. Each session was coordinated by the session chair and/or cochair and monitored by a graduate student volunteer (who was physically present in the corresponding meeting room).

We ensured that the social agenda of the conference fit people's needs to relax and interact. Dubrovnik and its beautiful scenery made our choices even better! We carefully planned a series of events for both young and experienced professionals and allowed for attendees to interact with each other socially, technically, and congenially in a relaxed atmosphere.

major technical problems that could not be handled on the spot—it was an easy walk in the park!

Even though COVID-19 is still present in our lives, we received a healthy response to the call for papers with 245 contributed, invited session, and poster papers. All things considered, the number of received contributions is indicative of the reputation of the conference and the appeal it has to the technical society. Following a very thorough and in-depth peer review process in which each paper had at least three reviews (plus an additional review from a member of the organizing committee) and as many as 11, the committee accepted 200 contributed, invited session, and poster papers for presentation and inclusion in the conference proceedings. All papers were also checked following the *iThenticate Document Viewer Guide* before the final decision was made. We assembled a full three-day, top-quality, technical program composed of five parallel tracks. Table 1 shows the submitted and accepted papers per country.

ICUAS 2022 considered seven tutorials/workshops. Based on registration, the following three were offered:

» "New Developments on Sense-and-Avoid (S&A), Distributed Fault Diagnosis (DFD), Fault-Tolerant Control (FTC) and Fault-Tolerant Cooperative Control (FTCC) Techniques for UAVs and Their Applications"
» "U-Space for the Future Urban Air Mobility: Concepts and Challenges"
» "Aerial-Core—Boosting the Adoption of Aerial Robotics in Real-World Applications."

The conference also included four keynote/plenary lectures given by leading authorities in their fields:

» "Is Control a Solved Problem in Robotics UAV Research?," Antonio Franchi, University of Twente, Twente, The Netherlands.
» "Unmanned Aircraft Systems Regulations. New Era for Aviation Law?," Anna Konert and Piotr Kasprzyk, Institute of Air & Space Law, Warsaw, Poland
» "Recent Advances in the Assessment and Certification of AI Ethics," Ali G. Hessami, Vega Systems, London, United Kingdom
» "Frontiers of Autonomous Flight and Real-Time 3D Reconstruction From Skydio," Hayk Martiros, Skydio, Redwood City, CA, USA.

A novel aspect of ICUAS 2022 was that it included for the first time an unmanned aerial vehicle (UAV) competition. The competition was student focused, offering unique opportunities for students to test and compare their skills with those of their peers worldwide. A total of 47 teams from around the world expressed interest in participating in the competition. The committee received and reviewed 15 solutions for the simulation phase and selected the top five teams to perform live during the conference. ICUAS 2022 supported the finalists, covering their accommodation and registration expenses. After a very tight competition, the team CVAR from Universidad Politécnica de Madrid, Escuela Técnica Superior de Ingenieros Industriales, Spain (David Perez Saura, Pedro Arias Perez, and Rafael Perez Segui) won first place.

The social agenda complemented the technical component of the conference. It allowed for participants to interact with each other socially, technically, and amicably in a relaxed atmosphere. It was obvious that physical interaction in conferences has no substitute.

In summary, ICUAS 2022 was a very successful conference. The attendees were very pleased, understanding, and accommodating. We received only positive feedback after the event, and we are happy about it. We are ready to go to Warsaw, Poland, on June 6–9, 2023. We are aiming for a physical-participant-only conference. Time will tell!

Matko Orsag
Alejandro Suarez
Kimon Valavanis

The "three musketeers" (from left to right): Matko Orsag, Alejandro Suarez, and Kimon Valavanis.