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Summarizing Media Release

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ICAS Workshop elaborates on Intelligent and Autonomous Engineering in Aeronautics

The ICAS biennial workshop was part of the ICAS Programme Committee (PC) Meeting held from 10 to 14 September 2017 in Winterthur, Switzerland. It was co-hosted by the Swiss ICAS Member, the Swiss Association of Aeronautical Sciences (SVFW). Dr. Shinji Suzuki of the University of Tokyo and PC Chair of ICAS, led this workshop participated by invited leaders and experts in the topic area from around the world. Authorized briefings made by the presenters are available at www.icas.org.

The workshop kicked off with a welcome message: “We are on the cusp of the third aerospace revolution, one with urban drones and industrial digitalization, enabled by emerging technologies in intelligent and autonomous engineering. This workshop takes full advantage of the unique PC group of over 70 representatives from the world-wide aeronautics communities by inviting the thought leaders and experts in the emerging technologies to share their ideas, theoretic framework, and application challenges and opportunities.” from the ICAS President – Dr. Susan Ying.

Increasing artificial intelligence (AI) capabilities were realized with the astonishing increase of computer powers and computational algorithms. The state-of-the-art computer science and software technology were addressed by the opening speaker, Dr. Paul Nielsen from Carnegie Mellon University (USA). The morning of the first day was focused on the intelligent technologies. Mr Toshihiko Noguchi from All Nippon Airways (Japan) presented the applications in aircraft maintenance, and Mr. Ronny Fehling for Airbus (Germany) explained the industrial data analytics and AI for the “big data” associated with operations. From the research field, Dr. Jae-Woo Choi from Aurora (USA) and Dr. Yoko Watanabe from ONERA (France) shared their unique insights on the autonomous and intelligent flight control system. Finally, the potential of AI for drones operations was addressed by Mr. Luuk van Dijk from Daedalean (Switzerland).

In the afternoon of the first day, the technologies of Unmanned Aerial Systems (UAS) were discussed. An Air Traffic System application for the UAS was presented by Mr. Sebastian Babiarz from Airmap (Germany) and by Dr. Peter Lenhart from Zurich University of Applied Sciences (ZHAW, Switzerland). The Collision Avoidance System was addressed by Mr. Johan Pellebergs from SAAB (Sweden) and by Mr. Andrea Schlapbach from FLARM Technology (Switzerland). UAS technologies developed in Switzerland were presented by Dr. Martin Fengler from Meteomatics and by Dr. Daniel Ambuehl from RUAG Aviation. Finally, discussions were moderated by Dr. Bruno Stoufflet from Dassault Aviation (France).

In the second day, the focus was on regulations for UAS. Firstly, Dr. Javid Bayandor from Virginia Tech (UAS) showed UAS collision damage computer simulations. Then UAS regulations in each country were presented by Mr. Ian Ross from FAA (USA), and by Mr. Antonio Marchetto from EASA (Germany), followed by Dr. Cees Bil from RMIT University (Australia) and Mr. Markus Farner from Swiss Federal Office for Civil Aviation (Switzerland). Finally, Dr. Cees Bil moderated discussions from this session.

Dr. Suzuki concluded the proceedings by stating, “Emerging technologies such as Intelligent and Autonomous technologies have enormous potential to change our industry, economy and human life, however new rules and regulations should be established to enable the operations in applying these emerging technologies. International collaboration is strongly required to create this new world. As an international professional society, ICAS has the role to facilitate this technical exchange and promote the international collaboration.”

The outcomes of the workshop will be used to inform the next ICAS Congress – to be held in Belo Horizonte, Brazil, 09-14 September 2018 (see www.icas2018.com), of the recent achievements and most important challenges and opportunities associated with Intelligent and Autonomous Engineering issues.

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