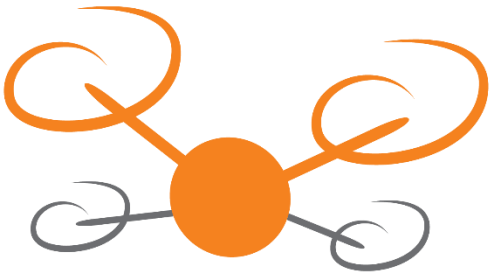

AeRoTwin

Twinning coordination action for spreading excellence in Aerial Robotics

INVITED TALK

27th September 2018

Bioinspired Aerial Robots for Infrastructures

Dr. Mirko Kovač

Imperial College London

This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 810321.

1. INVITED TALK DETAILS

Date: 27th September 2018

Time: 09:00 – 10:00

Location: Seminar Room of the Department of Control and Computer Engineering, University of Zagreb Faculty of Electrical Engineering (UNIZG-FER) Unska 3, Zagreb, Croatia

Title: Bioinspired Aerial Robots for Infrastructures

Name: Mirko Kovač

Affiliation: Aerial Robotics Lab, Imperial College London

2. ABSTRACT

Future cities will evolve into complex ecosystems where autonomous aerial, aquatic and ground-based robots will coexist with people and cooperate in symbiosis. To create this human-robot ecosystem, robots will need to respond more flexibly, robustly and efficiently than they do today. They will need to be designed with the ability to move safely close to humans and in contact with infrastructure to perform sensing and intervention tasks. Their behaviours will need to be carefully orchestrated to integrate smoothly into our environment and in industry 4.0 workflows. Taking inspiration to natural systems, aerial robotic systems can integrate multi-functional morphology, energy-efficient locomotion principles and advanced perception abilities that will allow them to successfully operate and cooperate in these complex and dynamic environments. This talk will describe design principles and technologies for the development of innovative and biologically inspired flying robots that can perform monitoring and manufacturing tasks for infrastructure systems. Examples will include flying robots with perching and aerial sensor-placement abilities, aerial-aquatic drones, drones with compliant landing systems for landing on autonomous cars, drones for aerial construction and repair, soft aerial robots, and origami-based drones for safe interactions with infrastructure elements.

3. LECTURER BIOGRAPHY

Dr. Mirko Kovač is Director of the Aerial Robotics Laboratory, Leader in Aero-structures at Imperial College London and Royal Society Wolfson Fellow. His research group focuses on the development of novel, biologically inspired flying robots for distributed sensing in air and water and on autonomous robotic construction for future cities. Dr. Kovač's particular specialisation is in robot design, hardware development and multi-modal robot mobility.

Before his appointment in London, he was a post-doctoral researcher at the Harvard Microrobotics Laboratory as part of the Wyss Institute for Biologically Inspired Engineering at Harvard University in Cambridge, USA. He obtained his PhD with the Laboratory of Intelligent Systems at the Swiss Federal Institute of Technology in Lausanne (EPFL). He received his MSc degree in Mechanical Engineering from the Swiss Federal Institute of Technology in Zurich (ETHZ) in 2005. During his studies he was research associate with the University of California in Berkeley USA, RIETER Automotive Switzerland, the WARTSILA Diesel Technology Division in Switzerland, and CISERV in Singapore.

Since 2006, he has presented his work at numerous international conferences and in journals and has won several best paper and best presentation awards. He has also been an invited lecturer and keynote speaker at more than 30 research institutions world-wide and he regularly acts as advisor to government, media, investors and industry on robotics opportunities. He has also been a representative speaker on education and innovation at the World Knowledge Dialogue Symposium 2008, the EPFL Didactic Days Conference 2008 and the London Innovation Summit 2014 and 2016.