

Autonomous Micro Aerial Vehicles: Design, Perception & Control

Hosted by ETH Zurich
4 ? 8 July, 2011



Professor Roland Siegwart, course conductor

Autonomous aerial vehicles are about to play major roles in tasks like reconnaissance for search and rescue, environment monitoring, security surveillance. Their mobility and sensing capabilities ? unavailable ground robots ? make them the ideal platform for exploration, mapping, and monitoring tasks, and for transport/delivery of payloads in complex 3-dimensional environments. If they are further realized in small scale, they can also be used in narrow outdoor and indoor environments, and they represent only a limited risk for the environment and people living in it. However, for such operations today?s systems navigating only on GPS information are no longer sufficient. Fully autonomous operation in cities or other dense environments requires the micro aerial vehicle (MAV) to fly at low altitude or indoors ? where GPS signals are often shadowed ? and to explore actively unknown environments while avoiding collisions and creating maps. This involves a number of challenges on all levels: helicopter design, power supply, perception, actuation, navigation, and control. In this summer school we will give a compact introduction into the engineering fundamentals of micro aerial vehicles, from design to perception and control. [Read More >>](#)

THE BASICS:

Lecturers:

Prof Roland Siegwart, Dr Davide Scaramuzza, Dr Margarita Chli, Dr. Samir Bouabdallah from ETH Zurich and external speakers will be conducting this course

Tuition:

Waived for IARU partner students

Target audience:

Primarily graduate students of all levels or students who have completed undergraduate studies with a solid background in engineering. However, students with a different background who want to learn more about this inspiring field are also welcome.

The course is open to both IARU students and students from other universities ([Application deadline](#) 15 April 2011).

About ETH Zurich:

Founded in 1855, ETH Zurich belongs to the top universities for science and technology as well as a recognized world leader in cutting edge technological innovation. Leveraging on its competencies, ETH Zurich hosts the IARU's website and provides thought leadership on Open Cast/Open Access publishing. It also plays an active role in many institutional activities of the Alliance which are exemplary of ETH Zurich's commitment to education and research. As a leading university, ETH Zurich symbolizes excellence in education and inspiration in research that guides its participation in the Alliance.

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