



UPM International Summer School

Drones



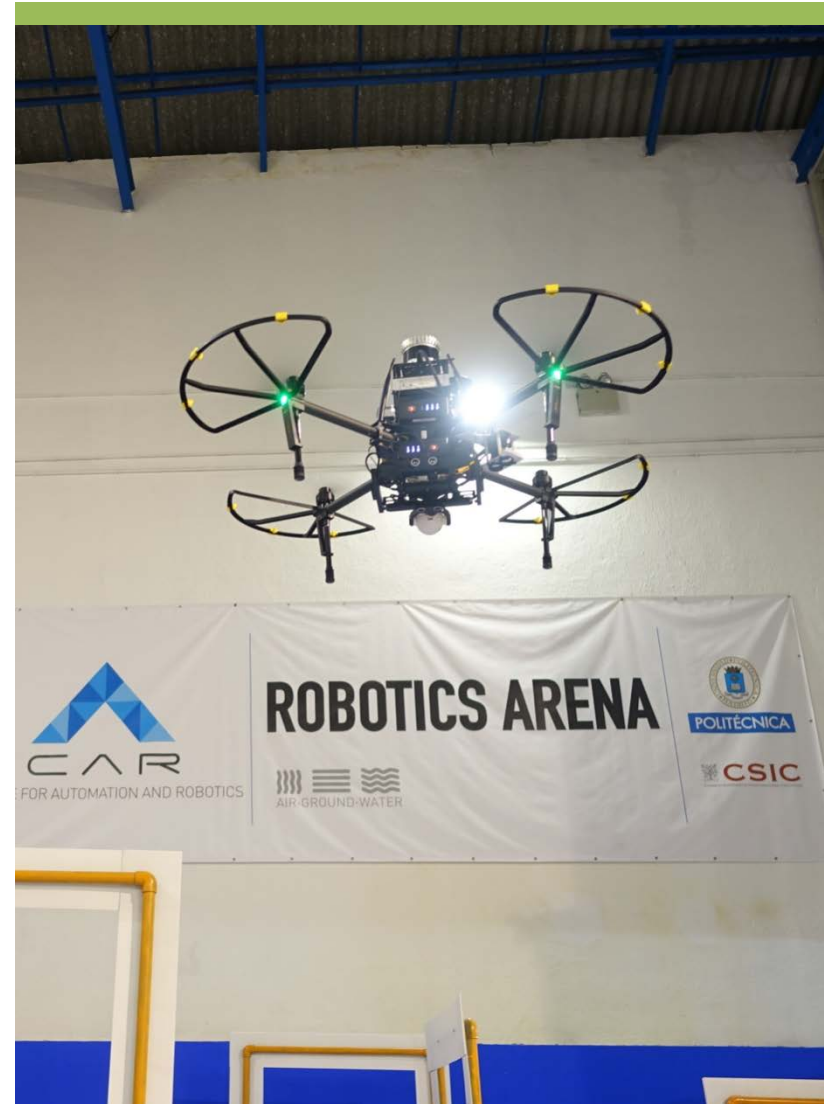
ETSII, 10, 11 & 12 July 2019
Director: Prof. Pascual Campoy

The civil applications of unmanned aerial vehicles (UAV) (also known as remotely piloted systems (RPAS) or commonly drones) are increasing. This short course mainly focuses on so-called multirotor drones. The two main challenges at present are endurance dependent on the electrical power supply (i.e. batteries) and autonomy regarding the dynamic, changing environment. This course will give an overview of concepts underlying many technologies, such as perception, sensor fusion, positioning, mapping, trajectory planning, sense and avoid, control, mission planning to provide drones with more intelligence and autonomy for fulfilling complex missions in changing dynamic environments.

Students: Bachelor

Pre-requisites: None

ECTS: 1 (10 class hours)





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Syllabus

MODULE 1: I. Introduction, Applications, general UAV structure and components, sensors for pose estimation
II. Pose estimation algorithms, sensor fusion, position and trajectory control

MODULE 2: I. Vision on board UAV. International competitions and challenges
II. Vision and Aerial Robotics Lab tour

MODULE 3: Industry Talk (si se tiene el título mejor)
Miguel Angel de la Villota
CEGA Drones

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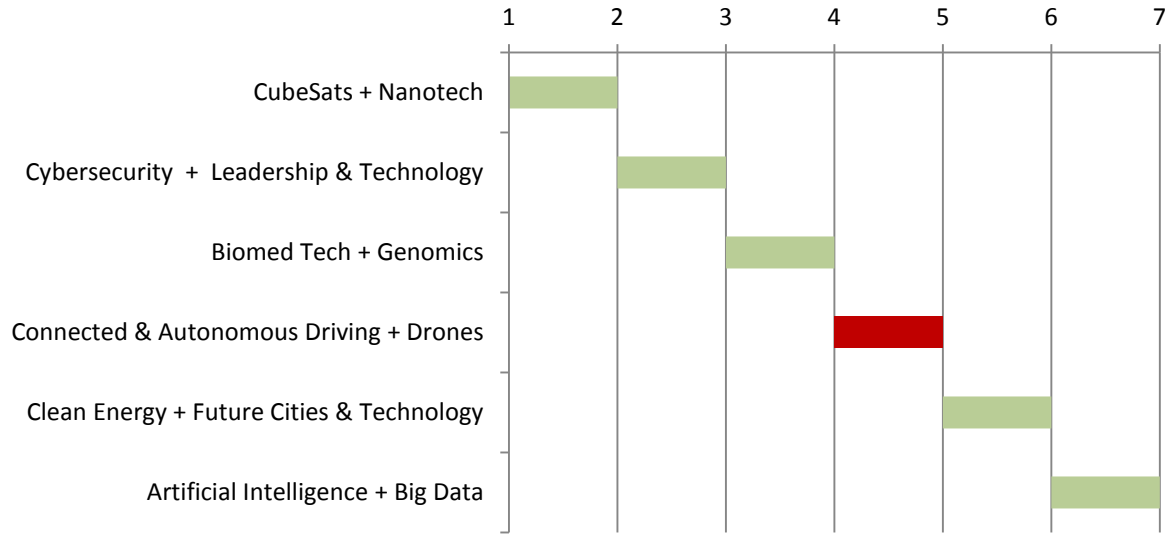




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Schedule



Week	Monday	Tuesday	Wednesday	Thursday	Friday
4			Lecture I Lecture II	Lecture Visit	Industry Talk



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Faculty



Pascual Campoy is full professor at the Universidad Politécnica Madrid and visiting professor at TUDelft (the Netherlands). He has also been visiting professor at Tongji University (Shanghai-China) and QUT (Australia). He currently lectures on control, machine learning and computer vision and leads the Computer Vision and Aerial Robotics Research Group within the Center for Automation and Robotics (CAR). He has been principal investigator of over 40 European and national R&D projects and over 25 technology transfer projects with industry. He has authored over 180 international scientific publications and nine patents. He has received several international prizes in UAV competitions: IMAV12, IMAV13, IARC14 and IMAV16.

Miguel Angel de la Villota is the CEO of CEGA Drones, top leading company in industrial inspection using drones.

