2 October 2018

Feeding the world in 2050!

The question of how to feed the world in a way that ensures human health, environmental sustainability and social wellbeing is one of the defining and most complex global challenges of our time. In the coming decades, our food system will face unprecedented challenges in its ability to feed and nourish the world. Today, there are over 815millions hungry people on the planet and billions more suffering from a phenomenon called 'hidden hunger' which results from a chronic lack of access to sufficient nutrients and vitamins. At the same time the rates of overweight and obese people are increasing leading to severe consequences for human health. The environmental basis for food and agricultural production is facing unprecedented strain from phenomena such as climate change, resource constraints, emerging pests and pathogens, and deterioration of soil quality.

In his talk, Dr. Martijn Sonnevelt will provide some insights on the interrelations of one of the most pressing, complex, and defining challenges of our time.

Martijn joined the World Food System Center (http://www.worldfoodsystem.ethz.ch/) as Executive Director in November 2017. He is also currently faculty at ETH Zurich D-USYS, where he teaches in the MS level course "Food Security – From the Global to the Local Dimension" and in the BS level course "Environmental Systems II."12 November 2018


12 November 2018

Autonomous, Agile, Vision-controlled Drones

Autonomous quadrotors will soon play a major role in search-and-rescue and remote-inspection missions, where a fast response is crucial. Quadrotors have the potential to navigate quickly through unstructured environments, enter and exit buildings through narrow gaps, and fly through collapsed buildings. However, their speed and maneuverability are still far from those of birds. Indeed, agile navigation through unknown, indoor environments poses a number of challenges for robotics research in terms of perception, state estimation, planning, and control.

In his talk, Dr. Davide Scaramuzza will show that active vision is crucial in order to plan trajectories that improve the quality of perception. Also, he will talk about his recent results on event based vision to enable low latency sensory motor control and navigation in low light and high dynamic environment, where traditional vision sensor fail.

Davide Scaramuzza is a professor of robotics and perception at both departments of Neuroinformatics (ETH Zurich and University of Zurich) and Informatics (University of Zurich), where he does research at the intersection of robotics, computer vision, and neuroscience, http://rpg.ifi.uzh.ch/. In 2015, he cofounded a venture, called Zurich-Eye, dedicated to the commercialization of visual-inertial navigation solutions for mobile robots, which later became Facebook-Oculus VR Switzerland. He was also the strategic advisor of Dacuda, an ETH spinoff dedicated to inside-out VR solutions, which later became Magic Leap Zurich. Many
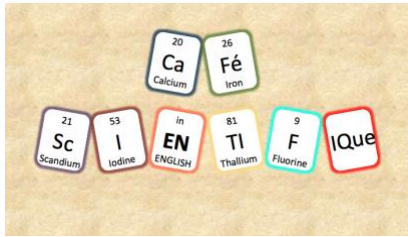
aspects of his research have been prominently featured in the popular press, such as Discovery Channel, BBC, IEEE Spectrum, MIT Technology Review Magazine.

3 December 2018

Plants have an immune system too, and why we should care?

Plants have always played a critical role for humanity as major source of food, oxygen and materials, and obvioulsy as a major contributor to our landscapes and social lives. Plants in both agricultural and natural ecosystem settings are however increasingly affected by pests and pathogens – a phenomenon that is exarcebated by climate change. While repeated agrochemical applications are the most common means of controlling plant diseases, another way to improve plant disease resistance is to enhance the own capability of plants to defend themselves.

In his presentation, Prof. Cyril Zipfel will present the different ways that plants use to sense microbes using their innate immune system. He will also illustrate how a better molecular understanding of plant immunity and of plant-microbe interactions can help designing strategies for sustainable control of plant diseases.

Cyril Zipfel is Professor of Molecular and Cellular Plant Physiology at the Department of Plant and Microbial Biology (University of Zurich), where he does research on how plants sense their environment. Before joining the University of Zurich in June 2018, he led a research group for 11 years at The Sainsbury Laboratory in Norwich (UK) – an institute that he directed from 2014 to 2018. He is a highly cited scientist that is a recognised pioneer and leader in the field of plant immunity having authored over 100 publications on the topic. He is also the recipient of several international awards and prestigious funding from the European Research Council.