



Informatik-Kolloquium

Freitag, den 16.08.2019, 14:00 Uhr,
Besprechungsraum 106, Institut für Informatik (D3),
Julius-Albert-Str. 4

Forschungsprojekt:

Simulation based Verification of Computer Vision Algorithms for Autonomous Aerial Refueling

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Autonomous Unmanned Aerial Vehicles (UAVs) are becoming more important. This also includes use cases in which those vehicles must cover larger distances. Consequently, the necessity of Autonomous Aerial Refueling (AAR) is increasing. Hence, the introduction of methods to execute this procedure are imperative. The utilisation of a simulation environment is a way to support the development of autonomous systems. A necessity for AAR is the location of the drogue basket over object detection. For safety assurances and standards to be met, the detection needs to be verified. This work investigates an approach for a technical infrastructure which can be utilised for the verification purpose. The system is comprised of a simulation environment and a Convolutional Neural Network (CNN), like You Only Look Once (YOLO) and Faster Regional Proposal Convolutional Neural Network (R-CNN) for the object detection. For modelling the simulation, the game engine Unity 3D is used. To cover the environmental impact during the AAR procedure, the classification of clouds and gust serve as parameters. Further considerations are the incidence of light and precipitation.