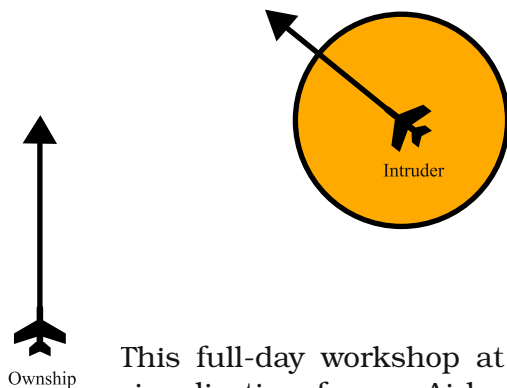


## Workshop “Applied Cognitive Systems Engineering in Aviation”

Cognitive Systems Engineering (CSE) and its main application, Ecological Interface Design (EID), are approximately 25 years old now. Starting with an example application in process control, and a seminal publication in 1992, EID found its way into process control first. This sparked interest in other safety-critical application domains, most notably, vehicle control in the aviation domain.

A distinctive trait of the approach has been the recognition that in all human endeavors we are bound by the constraints posed upon us by our surroundings. Our design choices, economics, goals

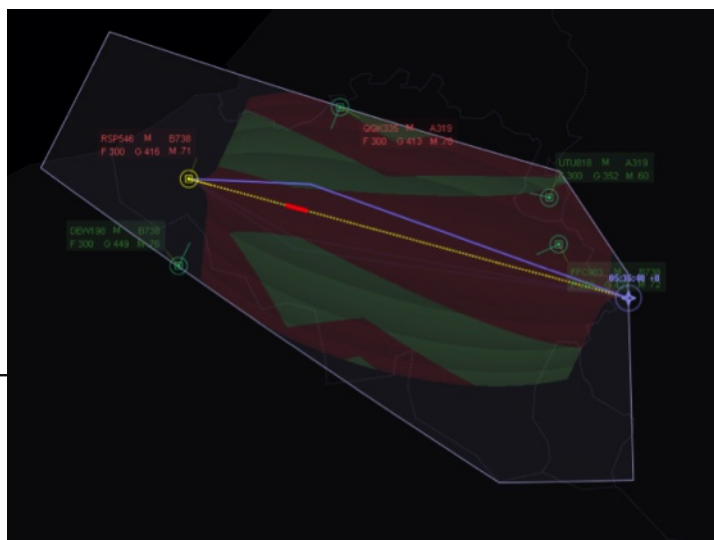
and needs and the physics of the world constrain the possible courses of action. The starting point in CSE is to determine what these constraints are. In contrast to “Cognitive Psychology” approaches, CSE starts not by looking what is inside the head (of the operator or user), but at what the head is inside of. EID continues by finding a visualization for the constraints thus discovered.



This full-day workshop at the ISAP 2017 conference will have a test case of designing a visualization for an Airborne Separation Assurance System (ASAS) as its central theme.

First, a theoretical background will be provided dealing with the utilization of a constraint-based design method in the aviation vehicle control domain. Second, an interface will be designed based upon the constraints thus discovered. Finally, the workshop applicants can participate in a multi-actor airborne separation assurance experiment. As such, this workshop completes a full design cycle comprising theory, modeling, and evaluation.

This workshop is given by a team of three presenters, René van Paassen and Clark Borst, associate and assistant professors at Delft University of Technology, Aerospace Engineering, assisted by Annemarie Landman, PhD student.



Workshop material:

- USB flash drive containing: workshop slides, collection of C&S EID-related journal papers, and bootable Linux distribution with a live ASAS simulation.