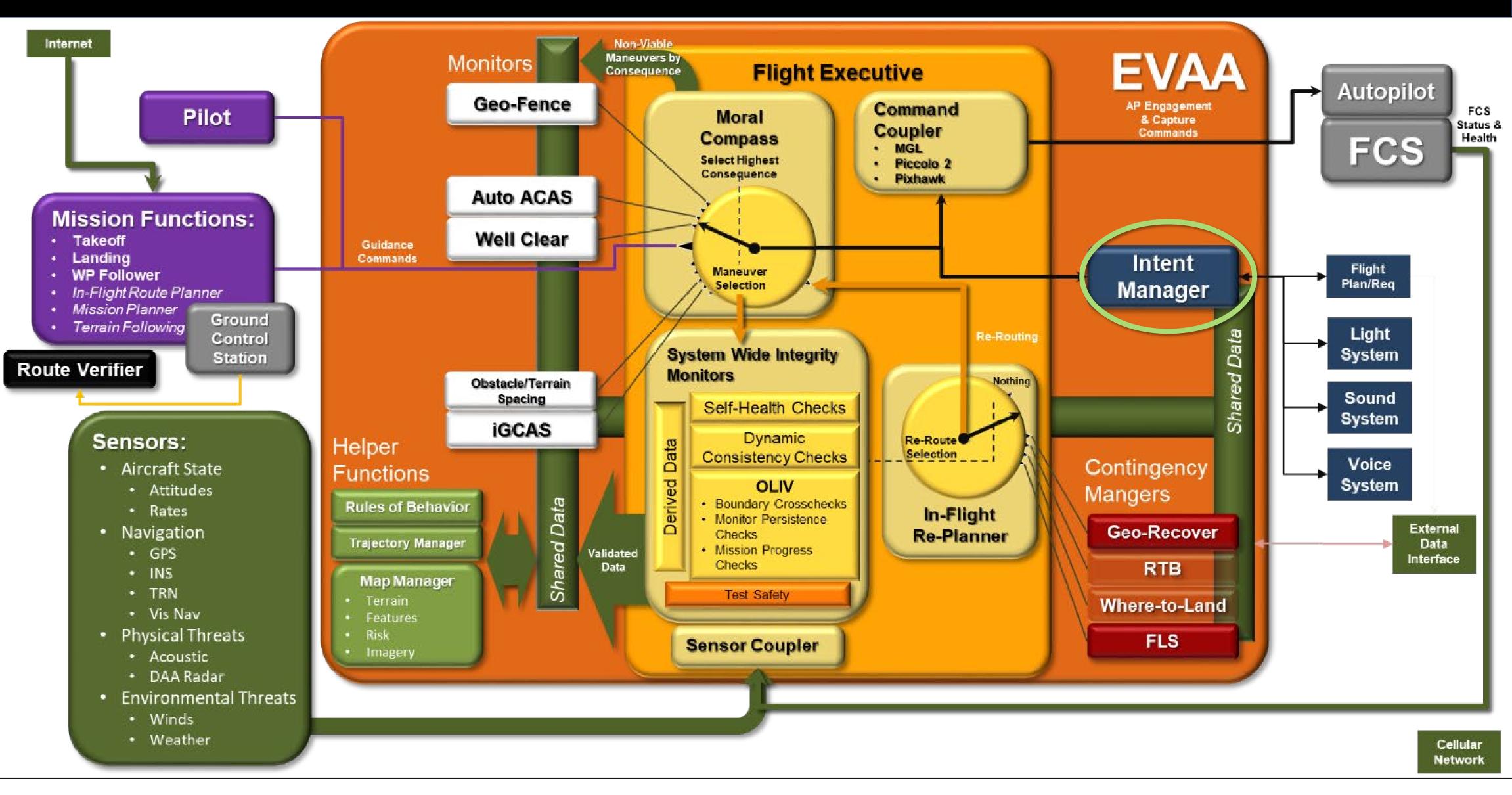# Design and Evaluation of Intent Manager for Resilient Autonomy's Expandable Variable-Autonomy Architecture (EVAA)

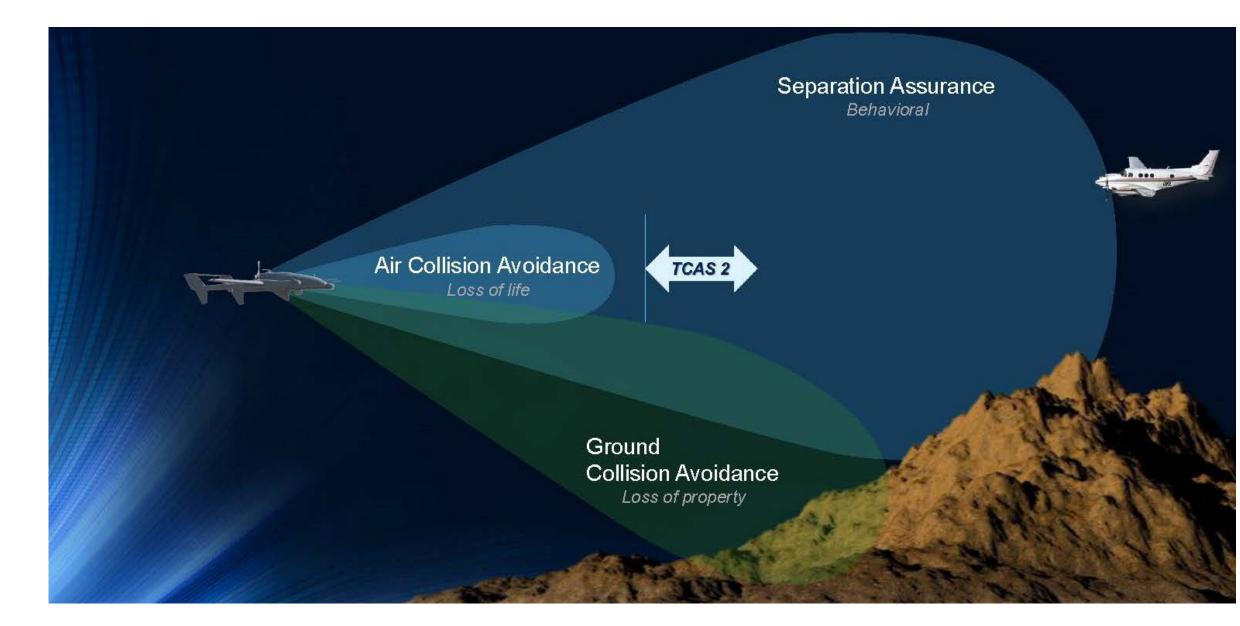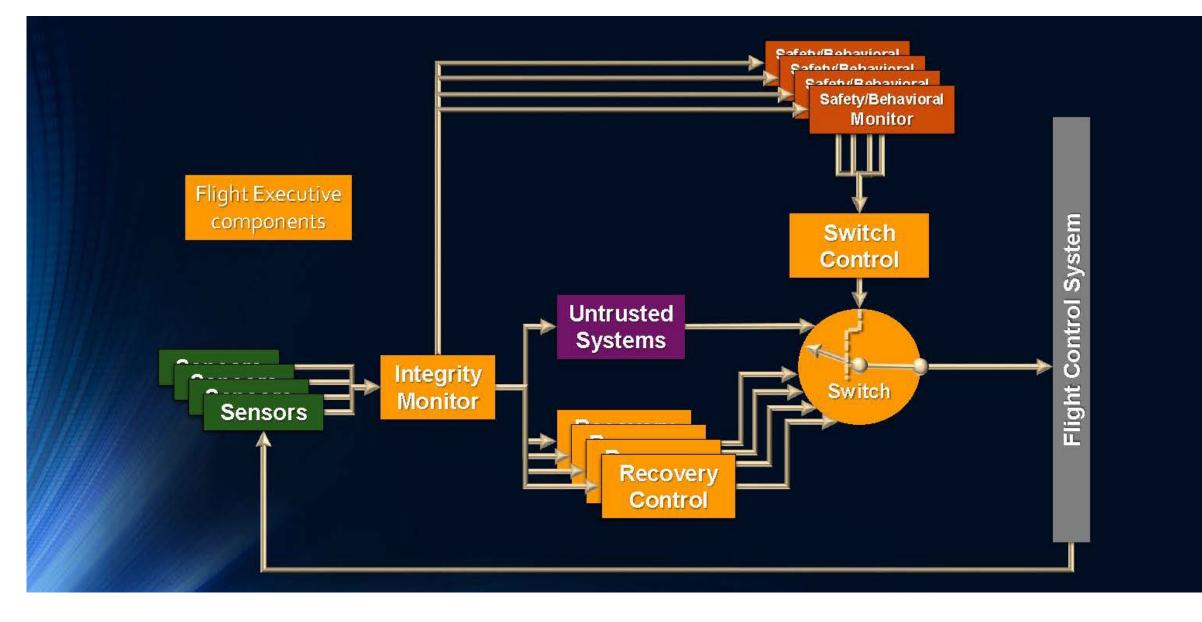**ARCS** — AUTONOMY RESEARCH CENTER FOR STEAHM

Research Objective

- Design an interface system for the Intent Manager of the NASA Resilient Autonomy (RA) Project's Expandable Variable-Autonomy Architecture (EVAA), which is a hierarchal autonomous system framework that depends on deterministic systems with higher authority to protect against catastrophic piloting faults and allow a lower level certification for the machine learning sub-systems

- Evaluate Intent Manager interface system and make recommendations to NASA EVAA designers and engineers

Research Approach

- Create a RA testbed at ARCS by replicating NASA ground control station and EVAA hardware and software that will provide a flexible framework for autonomy algorithm research and will allow software development

- Formulate requirements (i.e., autonomy must express its intent to others) for the Intent Manager's Social Computer

- Design and prototype an interface system in the form of a Social Computer that has stand-alone processors for receiving discrete info from EVAA and multi-model triggering (e.g., lighting, tones, voice)

- Conduct human-in-the-loop simulation studies to evaluate the Social Computer interface system

Research Team

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