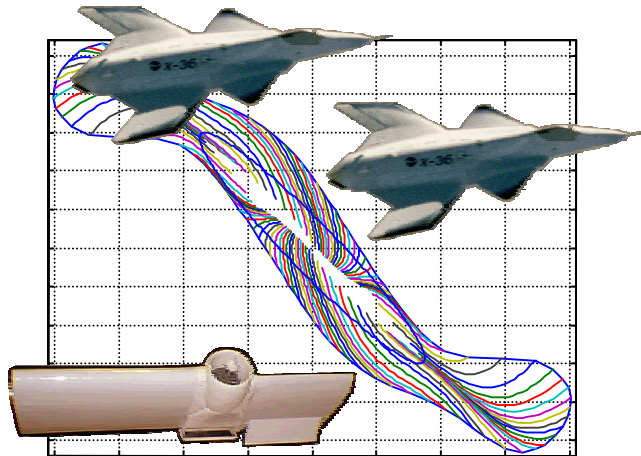




High Confidence Reconfigurable Distributed Control



New Ideas

Develop and validate an optimization-based, hierarchical control architecture for motion control systems. This approach is *scalable* to multi-vehicle formations.

Exploit new theoretical results in the development of receding horizon optimization objectives to provide guaranteed stability for aggressive flight vehicles.

Employ geometric methods to drastically reduce online computational requirements.

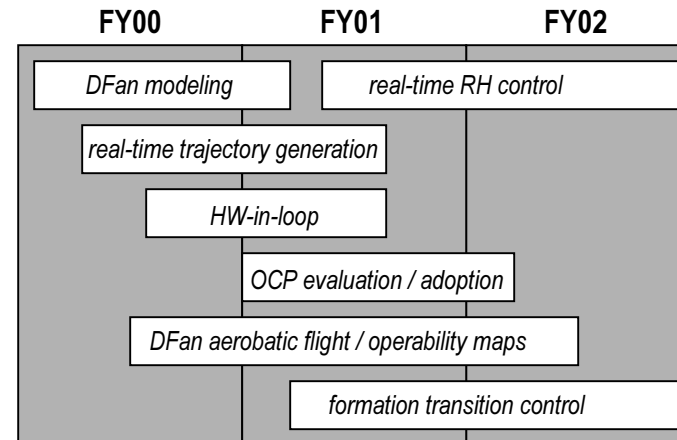
Aggressive experimentation on Caltech Ducted Fan, OCP.

Impact

Dramatically enhanced autonomous and semi-autonomous operations for high performance UAVs and UCAVs.

Full exploitation of extreme maneuvering possibilities afforded by novel UCAV configurations (vectored thrust).

Rapid reconfiguration capabilities for both flight vehicles and formations of flight vehicles.



Caltech: Doyle, Murray, Chandy

Colorado: Hauser

