Developing Co-Robotics

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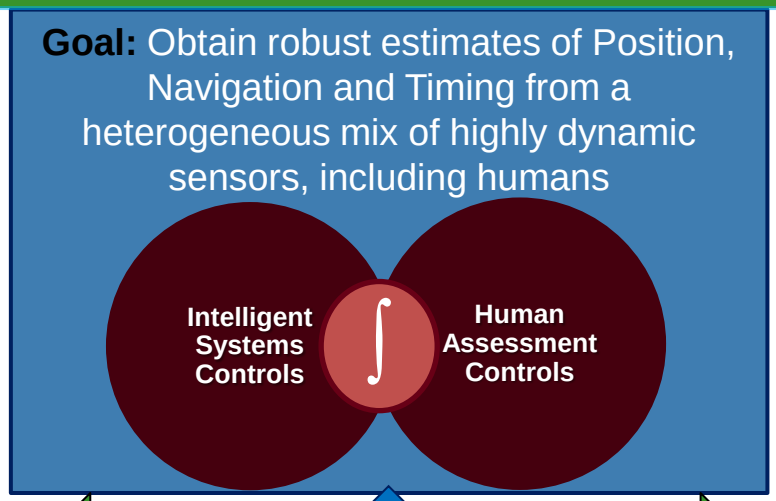
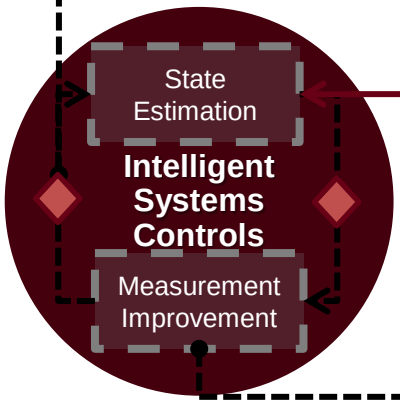
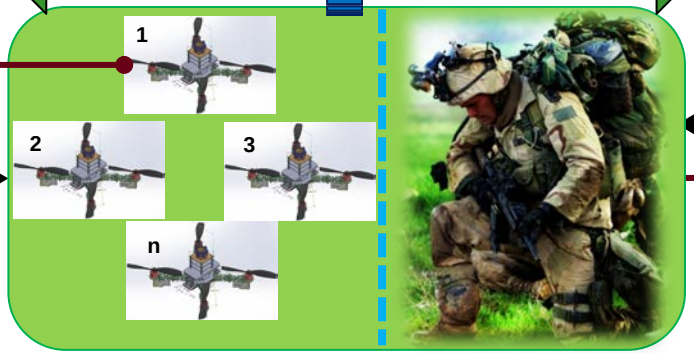
Question: For highly constrained, heterogeneous systems with multi-scale dynamics, how can we provide sufficiently accurate state estimates to enable control when sensor estimates are inherently noisy?

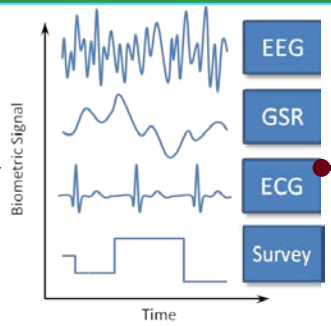
Goal: Obtain robust estimates of Position, Navigation and Timing from a heterogeneous mix of highly dynamic sensors, including humans



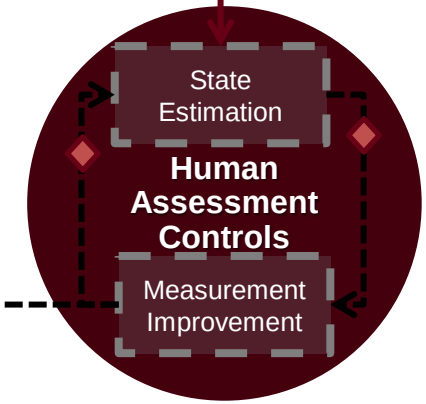
Dynamic, Complex, Heterogeneous, Multi-Sensor State Estimation With Confidence: Accesses Internal Information, Input From Other Vehicles and Opportunistically Available, External Saliency







Estimate and Monitor Human State



System Accesses & Informs Human

Approach: Develop generalizable methods to enable computationally lean, distributed robust fusion methods for state estimation from heterogeneous, noisy sources capable of expressing sensor uniqueness