

Robotics Control Convergence

A concise internal review brief for recurring cross-control conflict in autonomous and multi-controller robotic systems.

Problem

Planners, safety controllers, reflex layers, recovery logic, operators, and robot hosts can each act legitimately while the combined sequence repeatedly fails to settle on an executable state.

Position

Control-event sequence →

Cross-control conflict detection →

Bounded mediation signal →

Robot host acts or withholds

Strong fit

Autonomous or adaptive robots with heterogeneous controllers, different time scales or authorities, and recurring intervention sequences.

Weak fit

Simple fixed-sequence automation resolved by one static priority rule.

First evaluation

Use one recurring stop, replan, recovery, or authority sequence from logs or simulation. Direct actuator authority is not required for the diagnostic phase.

Buyer questions

- Which controllers intervene in the sequence?
- How often does the same structural pattern recur?
- What is the time to stable execution or safe abandonment?
- Who retains safe-stop and physical execution authority?