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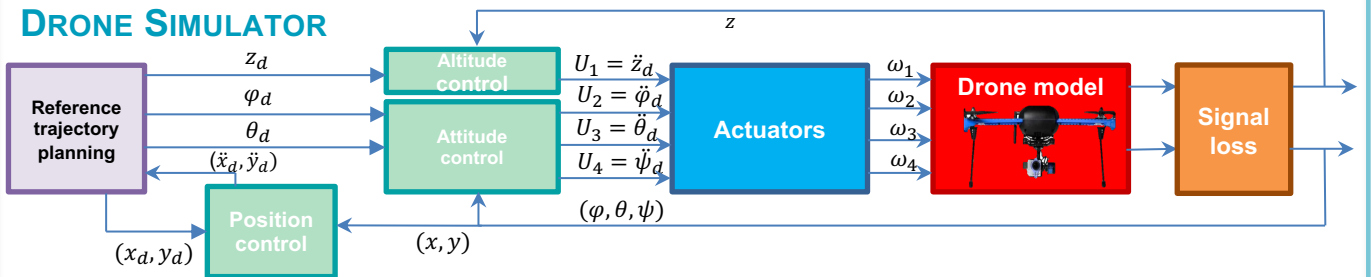
TRAJECTORY PATH TRACKING OF A DRONE IN A DISTURBED ENVIRONMENT

Halim OULD LAHSEN, Stéphane VICTOR, Pierre MELCHIOR, Serge CHAUMETTE

OBJECTIVES

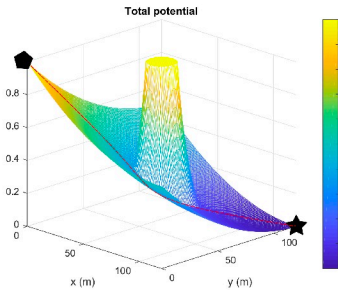
- **Drone simulator**
- **Optimal Trajectory Planning** and motion planning from system modelling
- **Robust Control System Design** towards disturbances, system uncertainties and dynamical variations
- **Signal loss modeling** and to help decision for path reconfiguration of the mission

DRONE SIMULATOR

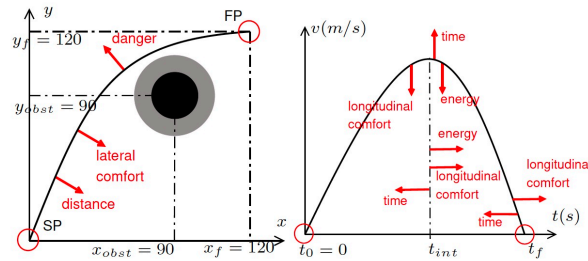


OPTIMAL TRAJECTORY PLANNING

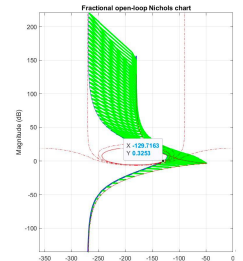
Artificial Potential Field for obstacle avoidance



Genetic Algorithm Optimization for motion planning

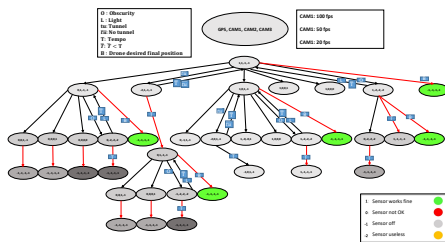


Robust CSD for robust path tracking

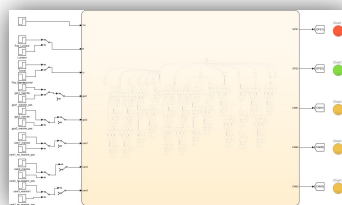


SIGNAL LOSS MODELING

Failure graph



Stateflow modeling



CONCLUSION

- Signal loss modeling with degradation modes of 2 sensors
- Optimal trajectory tracking

PERSPECTIVES

- Signal losses with more than 2 sensor failures
- Synchronized Robust Control
- Estimation of drone state with all sensor failure and path reconfiguration