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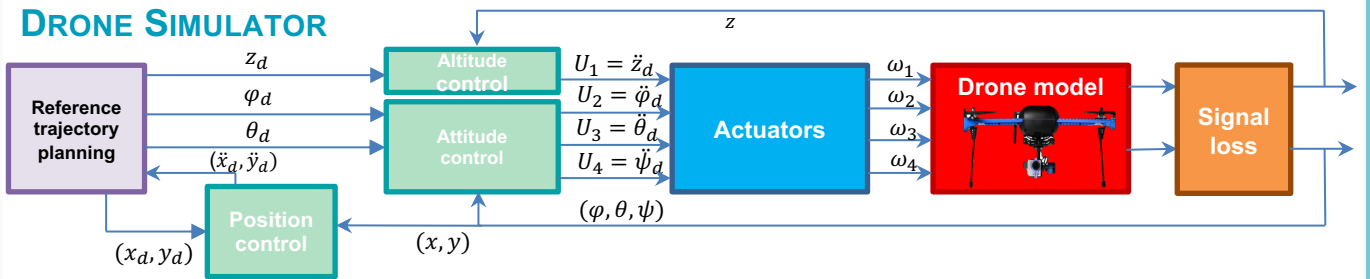
# TRAJECTORY PATH TRACKING OF A DRONE IN A DISTURBED ENVIRONMENT

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

## OBJECTIVES

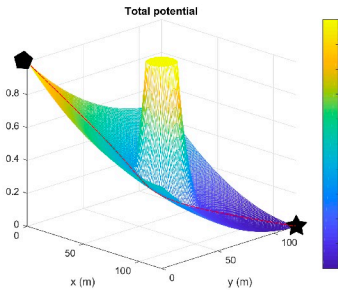
- **Drone simulator**
- **Optimal Trajectory Planning** and motion planning from system modelling
- **Robust Control System Design** towards disturbances, system uncertainties and dynamical variations
- **Signal loss modeling** and to help decision for path reconfiguration of the mission

## DRONE SIMULATOR

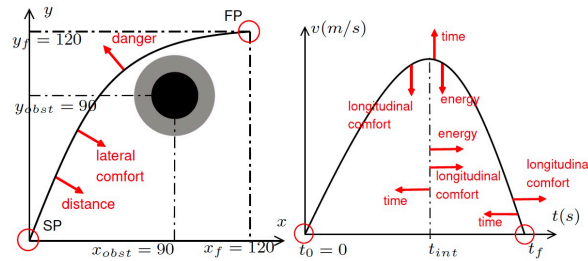


## OPTIMAL TRAJECTORY PLANNING

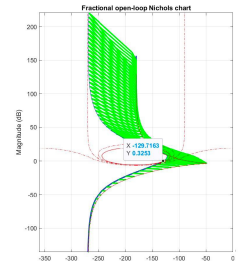
Artificial Potential Field for obstacle avoidance



Genetic Algorithm Optimization for motion planning

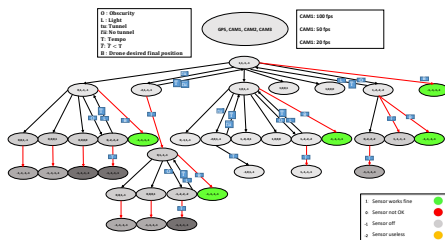


Robust CSD for robust path tracking

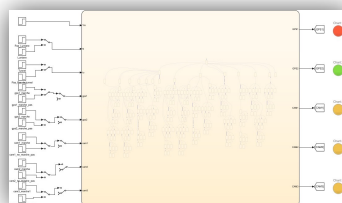


## SIGNAL LOSS MODELING

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