

ASTAIR

Auto-Steer Taxi at AIRport



OVERVIEW

ASTAIR aims at designing a support tool for fully automated ground operations supervision. The project has the potential to smooth ground operations and ensure better predictability while mitigating the impact on human workload and environment.

OBJECTIVES

1

Characterize levels of automation and identify pathways to full automation from the decision support solutions and technologies developed in AEON

2

Design of interactive tools in collaboration with the operators that allow to supervise, predict, and gradually takeover the control in ASTAIR automated concepts

3

Design human-centered AI algorithms able to perform optimized path planning and fleet management

4

Create a simulation and demonstration platform to demonstrate the potential of sustainable autonomous taxi operations with a unified ground operation position

 ASTAIR project

 ASTAIR project



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METHODOLOGY

In the near future, aircraft may be able to automatically follow a given route, either they are equipped with autonomous taxi or they are towed engines off by a tug. Given this assumption, an artificial intelligence based on advanced Multi Agent System modelling would be highly efficient to manage the movements of aircraft and tugs, deciding and potentially executing route clearances. By providing speed regulations (see illustration) and better ressource management such as real-time tug allocations, this system will be able to anticipate congestions and provide conflict free routes. While this higher level of automation and autonomy of an AI system for ground movements promises efficiency, questions arise regarding Human Automation Teaming.



ASTAIR addresses these concerns, ensuring smooth and safe operations in both normal and unexpected situations, including failure recovery. The ASTAIR project will explore use cases where humans and AI collaboration can bring safer and more predictable ground operations. The ASTAIR project outcomes will describe a new paradigm for ground management with multiple actors collaborating with an AI, and guidelines to make it safe and efficient.

