

Master Thesis:

Modeling of ATFM problem as a dynamic system in ATM

Task Description:

Along with other leading research institutes in ATM, at *DLR-Lufttransportsysteme*, experts are working in close collaboration with industry partners to develop practical solutions and tools. There is a chance for interested applicants to not only scientifically contribute to these ongoing projects but to get introduced to practical aspects of ATM. Based on *NFE* solution (Network Flow Environment: MATLAB coded Model for Air Traffic Flow Mngt problem) and *NETRES* (Network state and Resilience, Python tool) new features are planned to incorporate OR techniques in optimization. This study will contribute to implementation of *dynamic programming* in ATFM. This work is designed to build on “Rolling Horizon” & “Resilience: Disruption Management” concepts. More specifically the person appointed will join the ATFM team to focus on a work package covering the following tasks:

- Literature Review on ATFM Problem and Flight Planning,
- Introduction to recent Scientific papers on dynamic programming in ATM (Deterministic),
- Problem definition based on network representation of ATFM,
- Mathematical formulation of ATFM problem (Dynamic Programming+ ILP),
- Publishing the results as a paper(optional),
- Discussion of future work and documentation.

Requirements:

- Studies in Air Transportation & Traffic Eng. / Industrial Eng. /Operations Research etc.,
- Motivation and ability to work independently and collaboratively,
- Good programming skills (preferably Python or MATLAB),
- Knowledge sharing and Reporting skills,
- Working knowledge of English.

Beneficiary points:

- Record of published papers,
- Good academic records,
- Background in ATM,
- Statement of Purpose / Motivation Letter.


Deadline: *until position filled*


Duration: *Maximum 6 months*


Contact: (Please quote 'ATFMRES2' on all correspondence)

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