

Thesis

Exploring AI Integration for Enhancing SORA and ConOps Development

Background:

The Specific Operations Risk Assessment (SORA) is a critical framework in aviation for assessing and mitigating risks associated with Unmanned Aerial Systems (UAS) operations. This thesis explores how artificial intelligence (AI) can support the development process of the Concept of Operations (ConOps) as well as the integration and optimization of SORA. In addition to analyzing existing challenges, the focus is on identifying potential efficiency improvements through AI and evaluating possible standardization approaches.

Task Description (description is only a suggestion—feel free to reach out with

similar ideas in this field):

- State of the Art / Historical Development:
 - Definition of a ConOps in general
 - o Definition of a OM (Operator Manual) in general and with a focus on SORA
 - o Analysis of the development and evolution of SORA
 - o Examination of the advantages/disadvantages of SORA in terms of aviation safety/operations
- Optimizing the ConOps and the OM:
 - o Identifying strategies to optimize ConOps to facilitate easier SORA implementation
 - o Investigating if there is a strategy, that can lead to a simplified SORA process
 - o Developing recommendations for integrating SORA into ConOps/OM effectively
- Possible AI Integration
 - o Identifying opportunities to optimize ConOps development through AI-based methods
 - o Investigating the potential of AI to simplify the ConOps development process
 - Developing recommendations for effectively integrating AI into operational manuals for risk assessmen
- Standardzation:
 - \circ $\;$ Assess the potential for standardzation of ConOps/SORA interplay
 - \circ $\;$ Investigate other possibilites to establish a risk assessment for UAS operation
 - o Check feasibility and benefits of standardizing SORA
 - o Identify and recommend strategies for optimizing ConOps to simplify SORA processes
 - Feasibility analysis and benefit evaluation of AI-driven methods
- Documentation of results in a thesis , including references and appendices

Required Profile of Qualifications:

- Diligent and structured working methods and high level of commitment
- Basic knowledge in ConOps and aircraft development
- Basic knowledge of JARUS SORA process (or LBA SORA)

Submission Guidelines:

- The thesis should be written in English (however, german is possible) and follow the standard academic format
- Use of credible and up-to-date sources is mandatory
- Start date: Any time

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