

Language Model coordinated versatile and Scalable fixed wing Swarms (AMASS)

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Kurzdarstellung der Konsortialpartner

- AIT Austrian Institute of Technology, VAC-AAS (WP₁₋₅)

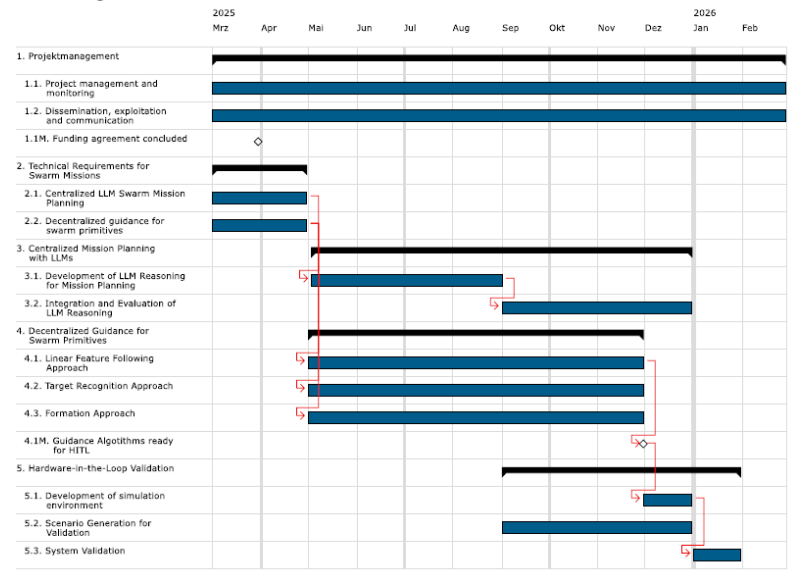
Ziel des Projekts

- Integrate and evaluate pre-trained LLMs to develop a swarm mission planner that adapts to dynamic disaster scenarios, reduces development complexity, and supports post-deployment scenario expansion.
- Evaluate flocking algorithms, including rule-based and potential field-based methods, to enable autonomous swarm behavior, focusing on fixed-wing UAV constraints and robustness to unforeseen events in simulation.



Arbeitsplan/Zeitplan/Umsetzung

- Technical Requirement for Swarm Missions (M₁₋₂)
- Centralized Mission Planning with LLMs (M₃₋₁₀)
- Decentralized Guidance for Swarm primitives (M₃₋₉)
- Hardware-in-the-Loop Validation (M₇₋₁₁)

GANTT-Diagramm



Angestrebte Verwertung

Results	Del.	Users of results	Exploitation Pathways			
Project Results (PR), Gained Knowledge and the expected long term benefits for the end users			Sci	Eco	Reg	Soc
 Field of Knowledge 1: Swarm Autonomous Operations			X	X	x	
Project Result 1: Swarm Primitives to enable <u>long range missions and fast response</u> to unforeseen events at highest autonomy levels (SAEL 4-5) applicable in any large area / wide range use case by the swarming of fixed wing drones	D4.1	Short term: • BMLV, BMI, BMLRT, etc. • UAV researchers & developers + Long term: • drone manufacturer & operat.				
 Field of Knowledge 2: Integration potential of LLM based Mission Planning			X	X	X	
Project Result 2: Evaluated LLM performance in Mission Planning to release the drone operator and increase accessibility of drone operations in particular in delicate situations (e.g. crisis management) by fully autonomous machine-to-machine communication	D3.1	• BMLV, BMI, BMLRT, etc. • Robotic application / UAV researchers & developers, computer scientists & software developers • etc.				

Short term

- Crisis and Disaster Management (fires, floods)
- Infrastructure Monitoring

Long Term

- UAV Applications which require continuous vast area monitoring
- Autonomous Robotic applications

Kontakte

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