RAASD Technology GmbH

Überlinger Str. 13, 78224 Singen (Hohentwiel)

Task #2: Radar Multiple Target Tracking (MTT) Algorithm Coding

Estimated Workload: 100 hours

Estimated Delivery Date: Feb 15th, 2025

Detailed Tasks:

1- Coding the Joint probabilistic data association (JPDA) tracker in C++.

The selected candidate will receive inputs to the tracker as detection reports (range, Doppler, and Bearing of the detected Constant False Alarm Rate (CFAR) peaks for different snapshots in time). The algorithm is meant to run on a dedicated CPU/GPU.

2- Validation of the implemented algorithm performance.

Inputs (first week of the WP execution):

1- The references (book/articles) for the details of the JPDA algorithm.

2- The purpose of the use of the JPDA algorithm in the context of the project.

3- Any other complementary information required for the execution of this WP. For instance: the detection reports for the targets, the input parameters required for the fine-tuning of the tracker, etc…

During the WP execution, recurrent follow-up meetings and discussions will be required between the candidate and the project team to ensure the WP is carried out following the project objectives and timeline.

Expected Outcomes:

1- Fully written JPDA tracker in C++ for the context of this project including the track initiation and the track management functions.

2- Implemented JDPA tracker on the GPU/CPU (parallel computing could be used to optimize the real-time execution of the algorithm).

3- Tested implementation in real-time operation to validate that the execution of the algorithm is errorless and that the performance is acceptable in real-time Vs the number of targets and the capacity of the GPU/CPU.

Required profile:

- Engineering student is a minimum requirement. Master's or bachelor's student is preferred.
- A strong DSP background is a must.
- Strong coding skills in C++ are required.
- Strong troubleshooting and analytical approach.
- Engineering experience from internships in the industry is an asset.

Coordinator (Dipl. Ing.): H.Meniaoui@raasd.de

Tech. Support (Dr. Ing): M.Benkilani@raasd.de **Tel.:** (+49) 176 74726649