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## A method for self-calibration of mmWave radar networks from moving target trajectories

### Applicants

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### Inventors

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### Priority Date

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### Protection

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### What we are looking for

We are looking for a suitable partner to enter into license deal/co-development partnership

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### What's needed for?

The proposed technique computes the roto-translation parameters of multiple mmWave radar devices respect to a reference coordinate system. The method calibrates radars in pairs and it is based on computing the optimal rigid transformation that matches the movement trajectories of multiple targets in the environment that are tracked by both radars. A dedicated association cost function has been designed that is able to identify the best track-to-track matches to perform calibration. The cost function is composed of terms that account for (i) the residual error of two tracks after application of roto-translation, (ii) the time synchronization between two tracks, (iii) the length of tracks. The technique is then able to automatically evaluate quality of the calibration by computing the residual matching error and re-calibrate if needed.

### Advantages

- The dedicated cost function is able to select the track couples providing the best calibration performance, among all the available
- Through the solution of the track-to-track association problem between the radars using a purposely designed cost function, the proposed technique exploits the presence of multiple targets moving in the environment to improve the calibration results, whereas existing solutions do not work in this case
- It supports any kind of target movement trajectory with high calibration performance

### Applications

- People Tracking
- Re-identification in large buildings

### TRL scale



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