Karlsruhe Institute of Technology

Communications Engineering Lab (CEL)
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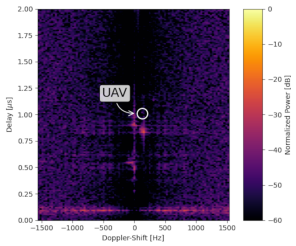
Object tracking using JCAS measurement data

Master's Thesis

Project

Joint Communications and Sensing (JCAS) will become an essential part of future wireless communication systems such as the next generation of mobile communications 6G.

In this thesis you will work with real measurement data (Delay Doppler Profiles of channels) and implement tracking algorithms (Kalman Filter, Machine-learning methods, ...) to track a moving target reflector. The focus of the thesis should be complexity reduction of existing approaches, such as limiting the amount of inputs into an algorithm, addressing quantization or computational complexity.



Tasks

1. Work with a measurement dataset
2. Implement approaches for detection & tracking
3. Compare different approaches with respect to accuracy and complexity

Requirements

- ✔ Basic programming knowledge in Python
- ✔ Basic knowledge of signal processing and filtering
- ✔ Interest in Joint Communications and Sensing
- ✔ Interest in addressing problems associated with real-world data

Institute

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