

Machine Learning techniques for Multi-target Localization in Sensor Networks

Research Area

Machine learning & Neural Networks, Localization & tracking

Keywords

Machine learning, neural networks, multi-target localization, radio measurement, wireless radio channel

Description

This thesis consist of a study and implementation of a Neural Networks (NN) for the purposes of multiple target localization and channel parameter estimation. It deals with radio measurements and the results should be compared with existing algorithms in the field of multi-target localization, to point out the potentials of the machine learning techniques.

Goal

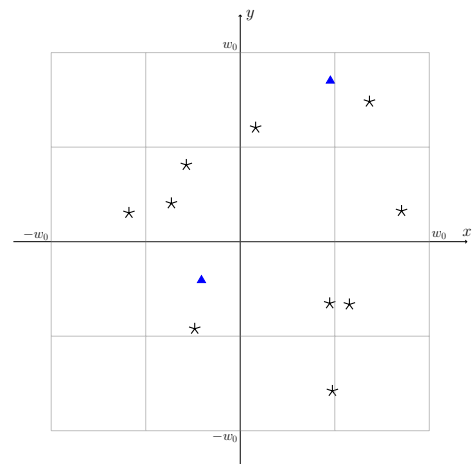
The thesis goal is to implement a neural network which learns parameters of wireless radio channels. The output of NN will be location of the targets.

Requirements

- Basic knowledge on wireless communication systems
- Standard competency in MATLAB and/or Python
- Basic knowledge on neural networks
- Basic competency on a machine learning framework, e.g., Tensorflow or Torch, etc.

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A wireless sensor network scenario consisting targets(▲) and sensors(★).