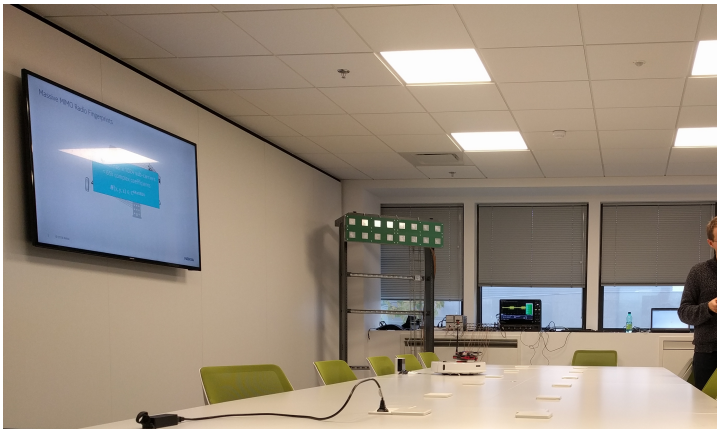
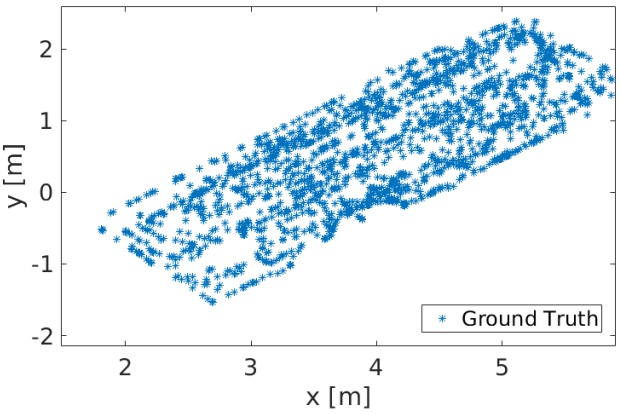
CTW-User Positioning - Dataset

Measurement Scenario

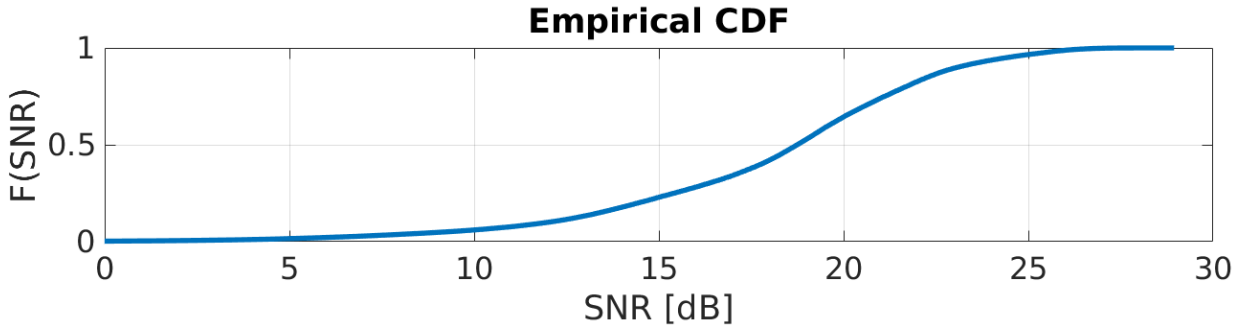
On the 14.11.2018 at the Smart Campus events from Nokia Bell Labs France, a indoor dataset with a 8x2 array was measured with a novel massive MIMO channel sounder [1]. A vacuum robotor with an SDR equiped, drove in a random path on a 4x2m table around and transmitted uplink OFDM pilots with a bandwidth of 20MHz and 1024 subcarriers at a carrier frequency of 1.25GHz. 10 % of the subcarriers were used as an guard band.





The left Fig. shows a picture of the measurement scenario. On the right hand the "Ground Truth" Points created by a Tachymeter with an accuracy below 1cm is shown.

Dataset Format



The Fig,. shows an CDF plot for alll antennas stacked of the SNR. Therefore the signal quality is in quite reasonable range. To get this dataset refere to [Link]. The dataset is given in a single MATLAB m-File containing three variables. The channel variable is called "Channel" with the dimension of [Number of measured Points x Number of antennas (16) x Number of used subcarriers (924)]. The position is given in the "Position" variable with dimensions of the number of points and there coordinates [x,y,z] (in this order). The last variable contains the SNR of each antenna at each point resulting in the dimensions of [Number of measured Points x Number of antennas].

Sources

[1] Novel Massive MIMO Channel Sounding Data applied to Deep Learning-based Indoor Positioning, Submitted to SCC2019, Maximilian Arnold, Jakob Hoydis, and Stephan ten Brink