



Abschlussarbeit am Fachgebiet Nachrichtentechnische Systeme

- Forschungsbereich: Sensor Array Processing
- Mögliche studentische Arbeiten: Masterarbeit, Bachelorarbeit, Projektseminar, Proseminar
- Beginn der Arbeiten: ab sofort
- Ansprechperson: Raphael Müller, M.Sc.
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Calibration of Phased Arrays for Acoustic Imaging with Low-rank Tensor Approximation Techniques

- Ultrasonic imaging has a wide range of applications, e.g., in navigation or healthcare. Compared to medical use cases, airborne sensor solutions face a severe problem: The reduced speed of sound in air and the requirement for large coverage areas provoke large propagation delays which slow down imaging frame rates. This shortcoming motivates the use of sparse sampling concepts which provide high imaging accuracy with only a few snapshot measurements.
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Your goal is to further develop calibration techniques that exploit the low-rank structure of imaging data. Preliminary work on this topic has been done in MATLAB. Basic knowledge in optimization, matrix analysis and sensor array processing is a plus. Real measurements can be conducted in cooperation with the MUST-Group headed by Prof. Dr. mont. Mario Kupnik to test and verify your proposed methods.