

On the use of Support Vector Machines for Antenna Array Processing

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Program

1. Introduction: Support Vector Machines (1 hour)
 - The basic SVM idea
 - Optimization of a linear SVM regressor in the complex plane
 - Nonlinear extension through data mapping into a Hilbert Space
2. Support Vector Machines for Array Processing (5 hours)
 - Linear beamformers with spatial and temporal reference
 - Generalized nonlinear beamformer
 - Direct application: Temporal reference.
 - Nonlinear formulation of the MVDM: spatio-temporal and spatial reference
 - Adaptive approaches
3. Support Vector Machines for parameter estimation (2 hours)
 - Idea of SVM system estimation and advantages over adaptive approaches
 - Application to linear beamformer parameter estimation
 - Applications to electromagnetics

Practical implementations upon availability of hardware.