

Graduate Mathematics Seminar

Learning with Difference-of-Convex Sparsity Functions

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Abstract: Variable selection is a fundamental methodology in statistical learning performed to obtain sparse representation of the trained model parameters. The first part of this talk emphasizes on studying properties of stationary solutions of the learning formulations where sparsity functions are used in the objective function. We derive bounds for the distance between the stationary solutions and a vector that is possibly the ground truth, and the model predictions produced by them. Furthermore, the inclusion relationships between their support sets are studied. Some of the results are generalization of the existing theory shown for the L1-norm regularized least squares minimization problem. The second part emphasizes on the constraint system defined by the sparsity functions. A system of affine sparsity constraints (ASCs) formulates various logical conditions among the variables as hard constraints. Structural properties of the set including its closeness and the characterization of its closure are analyzed. The set convergence of the approximation sets to the set of ASCs is presented.

When: Monday, April 20, 2020, 6:00 – 7:00 pm

Where: <https://csuci.zoom.us/j/7214277893>

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