

SEMINAR NOTICE

Preston M. Green Department of Electrical and Systems Engineering

Computation of Achievable Rate Region in Pattern Recognition

MS Dissertation Defense

By
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Abstract: Pattern recognition is widely used in many areas. When analyzing a pattern recognition system, one of the main problems to be considered is how many bits do I need to express the raw source data and memory data to ensure that the result of the pattern recognition be reliable. The data stored in the system as well as the data received by the system must be compressed by some rate to compress the raw data. The fundamental bound for this lies in the computation of the achievable rate of pattern recognition. Before now, we have the definition and some approaches for this achievable rate region from an information theory point of view, but these approaches can be applied only to some specific cases. There's need for a method to compute this region's boundary and this method should be able to be extended to any general case.

In this thesis, we present a new optimization algorithm associated with other algorithms in alternating optimization problems. This new algorithm will compute a bound of the achievable rate region in pattern recognition by solving the associated optimization problem. We show that this new algorithm can solve the problem we have for computing the boundary of the achievable rate region and can be extended to other areas.

DATE: Monday, April 30, 2018
TIME: 2:00 p.m.
PLACE: Green Hall, Room 0120

Research Advisor:
Dr. Joseph A. O'Sullivan

This seminar is in partial fulfillment
of the Masters Degree