Electrical & Computer ENGINEERING

ENERGY AND INFORMATION SEMINAR

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Weds, May 21

Porter Hall
Room B34
12:30 p.m.

Pooja Vyavahare
IIT Bombay

On Optimal Embedding of Functions for In-Network Computation

Pooja Vyavahare is a PhD student in department of Electrical Engineering at Indian Institute of Technology Bombay. Her research interest includes distributed function computing, algorithm design and optimization.

On Optimal Embedding of Functions for In-Network Computation

Efficient computation of the functions of distributed data is of interest for several diverse applications like sensor networks and programming models for cloud computing. In this talk we will discuss the problem of efficient in-network computation of functions of distributed data in a network when the sequence of operations to compute the function is given in the form of a directed acyclic graph. Such a representation will be called a computation graph. A computation and communication scheme on the network based on the computation graph is called an embedding. Efficiency of an embedding is characterized either by cost or delay of the computation. We will first show that for general computation graphs finding the minimum cost embedding is NP-complete and present polynomial time algorithms for some special classes of graphs. Likewise, we then present results for the case of minimum delay embedding.

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