

Industrial and Systems Engineering Seminar

Piecewise-linear Approximations for Network Revenue Management

Thursday, October 10

1:00 – 2:30 PM – Special Seminar

Mechanical Engineering Room 4125 A & B



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The network revenue management problem can be formulated as a dynamic program with an exponentially large state space. A number of heuristics have been proposed to approximate it. Notable amongst these are approximate dynamic programming methods that approximate the value function by basis functions and Lagrangian relaxation methods that relax the constraints of the network dynamic program to solve simpler single resource dynamic programs. We show that these two seemingly distinct approaches coincide in certain cases.

This is joint work with Kalyan Talluri, Univeritat Pompeu Fabra.

Bio: Sumit Kunnumkal is an Assistant Professor in the Operations Management area at the ISB. He teaches the core MBA course on Decision Models and Optimization and an elective on Service Operations. His research interests lie in the areas of revenue management, inventory theory, approximate dynamic programming and stochastic approximation. His research combines techniques from dynamic programming, stochastic optimization and simulation to develop algorithms for decision making in revenue management and supply chain systems. He holds a Ph.D. in Operations Research from Cornell University. He received his Master's degree in Transportation from the Massachusetts Institute of Technology and his Bachelor's degree in Civil Engineering from the Indian Institute of Technology, Madras.