

# INDUSTRIAL & SYSTEMS ENGINEERING SEMINAR

**Wednesday, April 6**

3:15 PM – Refreshments before the seminar

3:30 PM – Graduate Seminar

**Mechanical Engineering Room 4125 A & B**



## A Novel Movement-Planning Algorithm for Dispatching Trains on Rail Networks

**Dr. Srinivas Bollapragada**

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Each of the seven major railroads in North America owns between 20,000 and 40,000 miles of track and runs between 1000 and 5000 trains per day. Moving trains on such a complex network requires meticulous planning by hundreds of dispatchers. A movement plan is a detailed plan for moving trains in a rail network over a time horizon of 8 to 12 hours. It is also called a meet-pass plan because it involves planning meet locations where trains traveling in opposite directions can get past each other as well as pass locations where fast trains can get past slower trains traveling in the same direction. Dispatchers develop movement plans manually. We developed and implemented a novel algorithm at a major railroad company to automatically dispatch trains to increase average train velocities and save up to \$800 million per year.

**BIO:** Dr. Srinivas Bollapragada is a Principal Scientist at the General Electric's Global Research Center (GEGRC) in Niskayuna, NY. His research interests are in business applications of optimization technologies. During the past 16 years at GE Research, he had led the development of numerous innovative, algorithms-based business systems that are currently in use at several businesses including NBC-Universal, GE Finance, GE Energy, GE Aviation, and Norfolk Southern Railroad. Srinivas has published over 20 articles in journals such as *Operations Research*, *Interfaces*, *European Journal of Operational Research*, *IIE Transactions* etc. He has a Ph.D. in Operations Management from Carnegie Mellon University, and Master's and Bachelor's degrees in Electrical Engineering from IISc, Bangalore and IIT Madras respectively. He is the recipient of a number of awards including the Edelman (2001), Wagner (2009, 2004, 2002) and Nicholson (1996) finalist awards, IIE Transactions best paper award (2009), GE's Blodgett Award (2009) for technical excellence and the Saul Dushman award (2010) for team leadership. He represents GE Research on the INFORMS Roundtable, had served as the Chair of the Edelman award committee (2008-2010), and the Area Editor of OR Practice (2008-2010). He was named an INFORMS Fellow in 2009 and was recently named the Editor-in-Chief of *Interfaces*.

**FOR MORE INFORMATION ON DR. BOLLAPRAGADA'S RESEARCH, please visit:**  
<http://ge.geglobalresearch.com/geniusoftheday/genius/2011/1/5>