

COLLEGE OF ENGINEERING DISTINGUISHED SEMINAR SERIES

Speaker: Prof. Sridhar Tayur

Title: Quantum Integer Programming (QuIP): An Introduction

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Prof. Sridhar Tayur is the Ford Distinguished Research Chair and University Professor of Operations Management at Tepper School of Business. He received his Ph.D. in Operations Research and Industrial Engineering from Cornell University and his undergraduate degree in Mechanical Engineering from the Indian Institute of Technology (IIT) at Madras. He has won the Gerald L. Thompson Teaching Award, the George Leland Bach Excellence in Teaching Award given by MBA students, the INFORMS Teaching Case award, and was named ‘Top Professor’ by *Business Week*. In 2018, he founded Quantum Computing Group at Tepper and created the field of Quantum Integer Programming (QuIP).

He is the founder (and served as CEO) of the software company SmartOps [acquired by SAP] and is the founder of a social enterprise, OrganJet. SmartOps is the subject of a Darden Case (distributed by HBS) and OrganJet of an HBS Case. He is an INFORMS Fellow, a Distinguished Fellow of MSOM Society and has been elected to the National Academy of Engineering.

Quantum Integer Programming (QuIP): An Introduction

Many applications in Operations Management, Finance and Cancer Genomics (and other areas) can be modeled as non-linear (and non-convex) integer programs. Quantum computing, in particular Ising models, provide an alternative way to tackle these hard problems. In this talk, I will provide an introduction to this new area of Quantum Integer Programming, based on the recent course that I taught at CMU (and was taught at IIT-Madras) last fall, in collaboration with NASA/USRA and Amazon.

Link (to Lecture Notes that has link to Course Github): <https://arxiv.org/abs/2012.11382>