BINGHAMTON UNIVERSITY SCHOOL OF COMPUTING SEMINAR SERIES

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Challenges and Opportunities in Quantum Networks

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EB T1 or on Zoom

Abstract: The vision of a quantum Internet, a global network capable of transmitting quantum information, brings with it the promise of implementing quantum applications such as quantum computation, quantum key distribution (QKD), quantum sensing, clock synchronization, quantum-enhanced measurements, and many others. Developing such an infrastructure needs to address major challenges, such as: channel and operational noise, limited quantum information lifetime, and long-distance transmission losses. In this talk, I will present my work that tackles these major challenges and designs performance benchmarks, architectures, and resource allocation policies for first
generation quantum networks.

Bio: Dr. Nitish Kumar Panigrahy is an assistant professor in the School of Computing at Binghamton University. Previously, he was a postdoctoral researcher at NSF Engineering Research Center for Quantum Networks, working jointly with Prof. Leandros Tassiulas (Yale University) and Prof. Don Towsley (University of Massachusetts Amherst). He earned his PhD degree in Computer Science at University of Massachusetts Amherst in 2021. Nitish's research interests lie in modeling, optimization, and performance evaluation of quantum information networks. He has been active on the program committees of several conferences including IEEE QCE, IEEE GLOBECOM, and IEEE LCN conferences. His papers have received the IEEE Quantum Week'23 Best Paper Award (second place) and IEEE MASCOTS'18 Best Paper Runner-Up Award.