Computer Science Seminar

Intelligent High-Performance Networks via INCA

Ryan Grant

Abstract: In this talk we will describe a deadline-free general compute model for network endpoints called INCA: In-Network Compute Assistance. INCA builds upon contemporary NIC offload capabilities to provide on-NIC, deadline-free, general-purpose compute capacities that can be utilized when the network is inactive. We provide a detailed design for extending existing hardware to support this model. We will demonstrate where INCA fits in the existing smart network ecosystem and detail why it is a major departure from existing approaches. We will describe the new challenges that we overcame to invent INCA, detailing why creating a deadline-free general compute model for networks for HPC has not previously been explored. We will offer use cases for areas where INCA can be used and expanded, with special emphasis on using INCA to solve problems in the sciences and enabling new approaches to distributed machine learning that will be possible with INCA.

> Friday, January 24, 2020, 1:30 pm MSC E300 Planetarium

> > Computer Science Emory University