SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
COLLEGE OF DESIGN AND ENGINEERING
Website: https://cde.nus.edu.sg/ece

Area: Communications & Networks

Host: Assoc Prof Bharadwaj Veeravalli

TOPIC	**:**	**Theoretical Analysis of Multi Installment Scheduling with Result Retrieval on a Network-based Computation Platform for SAR Images**
SPEAKER	**:**	**Mr. Gokul Madathupalyam Chinnappan** **Graduate Student, ECE, NUS**
DATE	**:**	**Friday, 22 April 2022**
TIME	**:**	**10.00AM to 11.00AM**
WEBINAR	**:**	**Join Zoom Meeting** **https://us02web.zoom.us/j/3856417494?pwd=S2ZLREdJV01Td0VuZ0F1QnpFc3hNZz09** **Meeting ID: 385 641 7494** **Passcode: gokul**

ABSTRACT

Processing a large-scale Synthetic Aperture Radar (SAR) image dataset on a distributed computing infrastructure poses a challenging problem. Large-scale load distribution strategies like multi-installment scheduling (MIS) assume that the size of the result is negligible compared to the input workloads and hence ignore it in their design. Similarly, numerical methods like particle swarm optimization and their variants are not practical for real-time applications, given their run-time complexities. As both the results retrieval and completion time are crucial for SAR image data processing, in this presentation, we present a thorough theoretical analysis of an adaptive MIS that includes the result retrieval phase. We use the periodic nature of the internal installments to keep the strategy simple and fine-tune the last installment to avoid any idle times in the processors. We derive a closed-form solution for the load fractions and hence, the overall processing time, schedule feasibility criteria, and certain other properties that lead to adaptive scheduling. Finally, we validate our theoretical findings through simulation studies using a loosely connected virtual machines (VMs) topology for the SAR dataset.

BIOGRAPHY

Ph.D. Student in the Department of ECE, working on High-Performance computing for Radar Signal Processing.

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