SEMINAR ANNOUNCEMENT

DEPARTMENT OF ELECTRICAL AND COMPUTER ENGINEERING
Faculty of Engineering
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Area: Control, Intelligent Systems & Robotics

Host: Assoc Prof Prahlad Vadakkepat

TOPIC	**:**	**Accelerating Convergence in Dynamic Multiobjective Evolutionary Algorithms using Adaptive Population Reinitialization**
SPEAKER	**:**	**Mr Rambabu Rethnaraj** **Graduate student, ECE Dept, NUS**
DATE	**:**	**4 December 2019, Wednesday**
TIME	**:**	**10am to 11am**
VENUE	**:**	**E4-04-04, Engineering Block E4, Faculty of Engineering, NUS**

ABSTRACT

Dynamic multiobjective optimization (DMO) deals with multiple conflicting objectives that change over time and requires tracking of changing Pareto-optimal solutions (POS). Quality of the population reinitialized after every change affects the convergence speed and the quality of solutions obtained by dynamic multiobjective evolutionary algorithms (DMOEAs). This work proposes an adaptive population reinitialization in evolutionary DMO using an ensemble scoring scheme (ESS) that integrates four different population reinitialization mechanisms. When a change is detected in the environment, the existing population is reinitialized at promising regions using ESS to accelerate subsequent search towards the POS. The proposed ESS is integrated into dynamic versions of MOEA/D-DE and NSGA-II algorithms, and evaluated on 13 benchmark problems for different dynamic settings. The experimental results show that ESS improves the dynamic optimization performance of these DMOEAs significantly.

BIOGRAPHY

Mr. Rambabu Rethnaraj is a Ph.D. student at the National University of Singapore since 2016. He received his B.Eng. degree (First Class Hons) in Aerospace Engineering from Universiti Putra Malaysia, Malaysia, in 2015. His current research involves the development of evolutionary algorithms for solving dynamic multiobjective optimization problems and their applications to real-world optimization problems. His research interests include evolutionary optimization and machine learning.