

Chaotic Map Initializations with Tiki-Taka Algorithm for Software Remodularization Problem

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ABSTRACT:

Software system is often a dynamic entity. During its lifecycle, software system often evolves to reflect the bug fixes and upgrades as well as the addition/removal of features from its users. As the evolution process takes place, the modularization becomes complex and gradually loose its quality. Addressing this issue, this paper evaluates the performance of automated software remodularization using the newly developed Tiki-Taka Algorithm (TTA) and its variants with four chaotic map initializations based on Chebyshev map, Circle map, Logistic Map and Piecewise Map. Remodularization results of 3 selected case studies (i.e., Printer Manager, IOT controller, and Layer Monitor) demonstrate that TTA with Chebyshev map gives the best overall performance over other initializations including the pseudo-random initialization within the original TTA.

KEYWORDS:

Tiki-Taka Algorithm, Software Remodularization, Chaotic Maps

ACKNOWLEDGEMENTS

The work is funded by Fundamental Research Grant from Ministry of Higher Education Malaysia titled: An automatic researcher profiling system for UMP employing UMPIR data from Universiti Malaysia Pahang (grant no: RDU192211). We thank MOHE for the contribution and support.