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COMPUTER SCIENCE COLLOQUIUM

A Collaborative Neurodynamic Approach to Symmetric Nonnegative Matrix Factorization

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ABSTRACT

This paper presents a collaborative neurodynamic approach to symmetric nonnegative matrix factorization (SNMF). First, a formulated nonconvex optimization problem of SNMF is described. To solve this problem, a neurodynamic model based on an augmented Lagrangian function is proposed and proven to be convergent to a strict local optimal solution under the second-order sufficiency condition. Next, a group of neurodynamic models are employed to search for an optimal factorized matrix by using particle swarm algorithm to update the initial neuronal states. The efficacy of the proposed approach is substantiated on two datasets.

This paper was presented in The 25th International Conference on Neural Information Processing (ICONIP 2018), December, 13-16, 2018, Siem Reap, Cambodia.

Supervisor: Prof WANG Jun

Research interests: Neurodynamic Optimization Approach; Symmetric Nonnegative Matrix factorization

All are welcome!

In case of questions, please contact Prof WANG Jun at Tel: 3442 9701, E-mail: jwang.cs@cityu.edu.hk, or visit the CS Departmental Seminar Web at http://www.cs.cityu.edu.hk/news/seminars/seminars.html.