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Chaotic Neurodynamics Approach for Dynamic Optimization Problems

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Venue: Room B6605, City University of Hong Kong

Reception starts at 4:15pm

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Abstract

Combinatorial optimization problems are classified into two types of problems. The first one is a static combinatorial optimization problem, and the second one is a dynamic combinatorial optimization problem. A traveling salesman problem, a quadratic assignment problem, and a vehicle routing problem are grouped into the static combinatorial optimization problems because searching space is stationary. On the other hand, a packet routing problem is grouped into the dynamic combinatorial optimization problems because searching space is nonstationary. In this presentation, as one of the dynamic combinatorial optimization problems, we propose a routing strategy with chaotic neurodynamics for solving the packet routing problem. In addition, we analyze why the chaotic neurodynamics is very effective for avoiding the congestion of the packets.

About the Speaker

Dr. Takayuki Kimura received his B.Eng. and M.Eng. degrees from Kinki University in 2003 and 2005 respectively, and his Ph.D. degree in Engineering from Saitama University in 2008. He is presently a postdoctoral fellow in the Department of Electronic and Information Engineering at Hong Kong Polytechnic University. He got a prize of Young Researcher's Award from The Institute of Electronics, Information, and Communication Engineers in 2006. His current research interests are in the analysis and design of optimal networks for traffic networks, and optimization using chaotic dynamics, etc.