

Frontiers of Research

Dr. Junichi Kushida

DE (DIFFERENTIAL EVOLUTION) is one of the most attractive methods in evolutionary computation, lately. Dr. Junichi Kushida at Graduate School of Information Science, Hiroshima City University, has been challenging not only to tackle theoretical issues of DE but also to open the new way for applications to real-world problem. The first Frontiers of Research reports the research activities of Dr. Kushida.

The main research topic of Dr. Kushida is evolutionary computation, which is nature-inspired computational intelligence. In the evaluations of evolutionary computation, variety types of benchmark functions are used; however these benchmark functions reveal only theoretical aspect because they are numerical optimization. Therefore, numerous efforts are necessary to address real-world applications with evolutionary computation. Dr. Kushida has been tackling applications to real-world problem with DE, which is one of the most highly expected to grow in evolutionary computation.

One of Dr. Kushida's contributions is **Fashion Coordinate Support System** using interactive evolutionary computation. He has developed the application that coordinates fashion according to personal preference and taste using interactive differential evolution. In this application, once users chose the colors of shirt, skirt and shoes by their preference, the optimal combination, which has good taste totally, is determined automatically.

Interactive evolutionary computation is known as an optimization algorithm that its evaluation process is based on human sensibilities. Interactive evolutionary computation works well when evaluation process needs to be iterated until users are completely satisfied. DE has been widely-applied for engineering; However, Dr. Kushida has been addressing



Fashion Coordinate Support System

pioneering challenges on the application of DE to developing recommendation techniques based on sensibilities, such as personal preference and taste. He has been contributing the study on the applications of DE to real-world problem aggressively.

Moreover, Dr. Kushida has been conducting the study on Nurse Scheduling Problem (NSP), which is one of the optimization problems. He is planning to conduct verification experiments at realistic medical setting like hospitals.

Dr. Kushida has published many research papers on the journals of professional societies related to evolutionary computation. He is a member of IEEE SMC Hiroshima Section Chapter and contributes Young Researchers' workshop and many other Chapter's activities. He is also one of the organizing members and editorial board members for the Japan Society for Evolutionary Computation and Information Processing Society of Japan. We might don't want to miss his activities and contributions.



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Research Interest: Evolutionary Computation,
 Optimization, Two Player Game

Professional Society Memberships: The Japan Society for Evolutionary Computation,
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