

Workshop on Evolvability in Evolutionary Computation (EEC)

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Part of the Genetic and Evolutionary Computation Conference (GECCO-2004), held in Seattle, Washington USA

Organised by

Hideaki Suzuki (ATR Network Informatics Laboratories)

Hidefumi Sawai (Communications Research Laboratory)

www: http://www.his.atr.jp/~hsuzuki/confs/2004_GECCO-WS-EEC.html

Aims and Scope

Evolvability is one of the most controversial issues in the studies on artificial evolutionary systems. Using various notions and definitions on evolvability, a number of researchers have examined different aspects of evolvability so far: population's adaptivity to a certain environment, trait for perpetual changes of genotypes in the population, system's potential ability to evolve functions or solutions, etc.

In a long-range term, the evolvability governs the dynamics and the final outcome of natural or artificial evolution, so investigating evolvability leads us to the evaluation and improvement of the design of artificial evolutionary systems.

Having these notions in mind, this workshop focuses on evolvability studied in evolutionary computation (EC). As part of GECCO-2004, the workshop aims to bring together researchers interested in evolvability in GAs, GP, and so on, look back the previous achievements for evolvability in EC, and find out a clue or clues to extend the previous achievements towards the progress in our understanding of EC mechanisms and the enhancement of the evolvability.

Topics covered by the workshop are, but not limited to:

- Genotype representation
- Coding problem
- Genotype-to-phenotype mapping
- Evolution of translation
- Variability of fitness landscape
- Measuring, observing, or enhancing evolvability
- Evolution of evolvability
- Biological basis for EC
- Symbiogenesis
- Epigenetic Inheritance

- Coevolution
- Mathematical Models for evolvability

Program

“Chemical Genetic Algorithms: Enhancing Evolvability of GAs via Genotype-Phenotype Mapping”

Hidefumi Sawai (National Institute of Information and Communications Technology)

Hideaki Suzuki (ATR Network Informatics Laboratories)

Wojciech Piaseczny (ATR Network Informatics Laboratories)

“Chemical Genetic Programming – Optimizing the Evolutionary Translation Set”

Wojciech Piaseczny (ATR Network Informatics Laboratories)

Hideaki Suzuki (ATR Network Informatics Laboratories)

Hidefumi Sawai (National Institute of Information and Communications Technology)

“Implications of Incorporating Learning Probabilistic Context-sensitive Grammar in Genetic Programming on Evolvability of Adaptive Locomotion Gaits of Snakebot”

Ivan Tanev (Doshisha University, ATR Network Informatics Laboratories)

“Improving the Evolvability of Cryptographic Components”

William L. Millan (Queensland University of Technology)