Syllabus

2009 Spring Term

E8343 Evolutionary Computation

Textbook:

R. Eberhart and Y. Shi, "Computational Intelligence: Concepts to Implementations," Morgan Kaufmann, 2007, p. 496.

D. Ashlock, Evolutionary Computation for Modeling and Optimization: Springer, 2006.

Y. Shi, Swarm Intelligence: Morgan Kaufmann, 2001.

Instructor: Yihjia Tsai

1. Introductory Readings on Evolutionary Computation
2. Genetic Algorithms and Evolving Rule Sets
3. Genetic Programming and Biology
4. Genetic Programming Formalisms
5. Statistics in Genetic Programming
6. Evolutionary Programming and Evolution Strategies
7. Artificial Neural Networks
8. Swarm Intelligences
9. Student Presentations

Reference:

E. Bonabeau, M. Dorigo, and G. Theraulaz, Swarm Intelligence: From Natural to Artificial Systems: Oxford University Press, 1999.

M. Dorigo, L. M. Gambardella, M. Birattari, A. Martinoli, R. Poli, and T. Stützle, "Ant Colony Optimization and Swarm Intelligence," in 5th International Workshop, ANTS 2006, Brussels, Belgium, September 4-7, 2006: Springer, 2006, p. 526.

E. Mitleton-Kelly, Complex Systems and Evolutionary Perspectives of Organisations: The Application of Complexity Theory to Organisations: Pergamon, 2003.

Grading: 40% home works + quizzes, 10% attendance, 50% final presentation and report