Introduction to Evolutionary Multi-Objective Optimization

This talk starts with the formulations of single-objective and multi-objective optimization problems. It is explained that almost all optimization problems have multiple objectives whereas they are usually handled as single-objective optimization problems. Next, multi-objective optimization is formally explained using some mathematical concepts such as Pareto dominance and Pareto optimality. Then, the framework of evolutionary multi-objective optimization algorithms is explained together with frequently-used algorithms such as NSGA-II, MOEA/D and SMS-EMOA. The use of evolutionary multi-objective optimization in the structure design of neural networks is also mentioned in this talk.