

The wrapped course: COMP 307

Topic: Portfolio Optimization Using Evolutionary Computation

The preliminary organization of essay and citations:

Section 1, introduction, describes the evolutionary computing in financial modeling and the applications of EC in Finance such as portfolio optimization.

Main citation: Anthony Brabazon, Michael O'Neill and Ian Dempsey (2008). An introduction to evolutionary computing in finance. IEEE COMPUTATIONAL INTELLIGENCE MAGAZINE, NOVEMBER 2008, 42-55.

Section 2, intelligent financial portfolio composition, introduces the implementation of the application capable of automatically manage a financial fund or portfolio by using evolutionary intelligence techniques.

Main citation: António M. S. B. S. Gorgulho, Rui F. M. F. Neves, Nuno C. G. Horta (2013). Intelligent Financial Portfolio Composition Based on Evolutionary Computation Strategies. Series: SpringerBriefs in Applied Sciences and Technology Computational Intelligence (eBook).

Section 3, unconventional methods for the portfolio optimization problem, presents some new EC techniques such as PSO, GRA and GNP, applied to portfolio selection.

Main citation:

Hanhong Zhu, Yi Wang, Kesheng Wang and Yun Chen (2011). Particle Swarm Optimization (PSO) for the constrained portfolio optimization problem. Expert Systems with Applications 38 (2011) 10161–10169

Yan Chen and Kotaro Hirasawa (2011). A Portfolio Selection Model Using Genetic Relation Algorithm and Genetic Network Programming. IEEJ TRANSACTIONS ON ELECTRICAL AND ELECTRONIC ENGINEERING 6: 403–413

KOKI MATSUMURA and HIDEFUMI KAKINOKI (2014). Portfolio Strategy Optimizing Model for Risk Management Utilizing Evolutionary Computation. Electronics and Communications in Japan, Vol. 97, No. 8, 45-62

Section 4 Final conclusions.