matching problem

**Hungarian算法**：

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**KM算法**：

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**Gale-Shapley算法：**

Gale, David, and Lloyd S. Shapley. “College Admissions and the Stability of Marriage.” American Mathematical Monthly, vol. 69, no. 1, 1962, pp. 9–15.

vehicle routing problem

**首次提出**：

Dantzig, G. B., and J. H. Ramser. “The Truck Dispatching Problem.” Management Science, vol. 6, no. 1, 1959, pp. 80–91.

在算法层面可以抽象为图类问题，属于NP-hard问题，并且是一个组合优化问题，可以分为不同的基本问题进行求解：最小生成树，最短路问题，最小费用流问题，旅行商问题。主要可以使用启发式算法求解这类问题

facility location problem

**选址问题相关问题**：

Brandeau, Margaret L., and Samuel S. Chiu. “An Overview of Representative Problems in Location Research.” Management Science, vol. 35, no. 6, 1989, pp. 645–674.

**设施选址问题的近似算法主要分三类：**

**线性规划舍入法 LP rounding：**

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**原始对偶法 Primal dual：**

Jain, K., and V. V. Vazirani. “Primal-Dual Approximation Algorithms for Metric Facility Location and k-Median Problems.” 40th Annual Symposium on Foundations of Computer Science (Cat. No.99CB37039), 1999, pp. 2–13.

**局部搜索法 Local search：**

Arya, Vijay, et al. “Local Search Heuristics for k -Median and Facility Location Problems.” SIAM Journal on Computing, vol. 33, no. 3, 2004, pp. 544–562.

production scheduling problem

生产调度问题可以分为单机调度问题、并行机调度问题、流水车间调度问题和作业车间调度问题等。求解近似算法一般采用禁忌搜索算法，粒子群算法等。

**单机调度问题 Single machine SP：**

Shakhbazyan, K. V., and N. B. Lebedinskaya. “Effective Optimization Methods for Single-Machine Scheduling (Survey).” Journal of Mathematical Sciences, vol. 24, no. 1, 1984, pp. 133–148.

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**混合流水车间调度问题HFS：**

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convex optimization

Boyd, Stephen, and Lieven Vandenberghe. Convex Optimization. 2004.

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Nocedal, Jorge, and Stephen J. Wright. Numerical Optimization. 2006.

Bertsimas, Dimitris, and John Tsitsiklis. Introduction to Linear Optimization. 1997.

quadratic programming

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Frank, Marguerite, and Philip Wolfe. “An Algorithm for Quadratic Programming.” Naval Research Logistics Quarterly, vol. 3, 1956, pp. 95–110.

**求解二次规划问题的方法：**

**lemke方法：**

Lemke, C. E., and J. T. Howson. “Equilibrium Points of Bimatrix Games.” Journal of The Society for Industrial and Applied Mathematics, vol. 12, no. 2, 1964, pp. 413–423.

**Karmarkar算法：**

Karmarkar, N. “A New Polynomial-Time Algorithm for Linear Programming.” Combinatorica, vol. 4, no. 4, 1984, pp. 373–395.

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