基本算法过程

算法 (模拟退火算法)

Step 1. 初始化可行解和温度.

Step 2. 根据 Boltzmann 概率退火.

Step 3. 重复第二步直到稳定状态.

Step 4. 降温.

Step 5. 重复第二步至第四步直到满足终止条件或直到给定的步数.

Step 6. 输出最好的解作为最优解.

Homework

Use SA to solve the following maximization problem,

$$\begin{cases} \max \sqrt{x_1} + \sqrt{x_2} + \sqrt{x_3} \\ \text{subject to:} \\ \qquad x_1^2 + 2x_2^2 + 3x_3^2 \leq 1 \\ \qquad x_1, x_2, x_3 \geq 0. \end{cases}$$

Homework

Use SA to solve the following nonlinear goal programming,

$$
\begin{cases}
\text{lexmin}\left\{d_1^- \vee 0, d_2^- \vee 0, d_3^- \vee 0\right\} \\
\text{subject to:} \\
\quad 3 - \sqrt{x_1} = d_1^- \\
\quad 4 - \sqrt{x_1 + 2x_2} = d_2^- \\
\quad 5 - \sqrt{x_1 + 2x_2 + 3x_3} = d_3^- \\
\quad x_1^2 + x_2^2 + x_3^2 \leq 100 \\
\quad x_1, x_2, x_3 \geq 0.
\end{cases}
$$