import numpy as np

import matplotlib.pyplot as plt

def fBm(H, N):

# 生成正态分布随机数

Z = np.random.normal(0, 1, N)

# 初始条件

X = np.zeros(N)

X[0] = Z[0]

# 递推计算

for i in range(1, N):

X[i] = 0.5 \* (Z[i] + Z[i-1]) \* pow((i+1), H)

# 计算均值和标准差

mean = np.mean(X)

std = np.std(X)

# 归一化

X = (X - mean) / std

return X

H = 0.6 # 赫斯特指数

N = 1000 # 时间序列长度

M = 10 # 生成路径数

for i in range(M):

Y = fBm(H, N)

plt.plot(Y)

plt.show()

效果截图：

