

The crossover and mutation operators are substituted by:

- **learning the probability distribution**
- **generating new individuals by sampling**

Estimation Distribution Algorithms

Cellular Estimation Distribution Algorithms

Cellular Evolutionary Algorithms

A kind of **evolutionary algorithm** (EA) in which:

- **individuals** cannot mate arbitrarily,
- every one **interacts** with its **closer neighbors**

- Cellular EDAs **need less fitness function evaluations** to achieve the same results than other EDAs.
- **Continuous UMDA** is the simplest EDA. It **don't needs large populations**.
- Several works shown the **advantages** of the use of **Normal and Cauchy distributions** over other probability distributions.

CUMDANCauchy++

(2020 Competition)

Due to the uncertainty, a new mechanism was introduced:

- The global optimum is updated with the best individual of a generation only if the average fitness of a k selected individuals is lesser than the current global optimum.

◆ Minor improvements and many time tuning the params ☺

CUMDANCauchy

(2019 Competition)

It is Cellular Evolutionary Algorithm

- with **Univariate Estimation** and a **ring neighborhood**,
- which **learn a combination of Normal and Cauchy distributions** from the global population to generate the new individuals



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