

Evolutionary Computing - an overview -

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Program of today

- Lecture and exercise on evolutionary computing and genetic programming
- Written assignments, we need to get everyone started!

The idea

Use inspiration from biological evolution for optimization problems which are difficult to solve with other means (e.g., NP-complete)

Examples:

- Hardware design: Digital and analogous circuits
- Medicine: drug design
- Architecture
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The principle

Given: Problem to be solved + fitness function to measure quality of proposed solution

Start: Generate first generation of solutions, totally at random.

Step: Produce new generation, by pairing properties from the most fittest solutions ("crossover")
... using probabilistic choices and a little bit of mutation...

Keep track of most fittest solution ever produced

Rest of today

- Briefly through the textbook's slides
- NB: Skip section 7.4
- See comments on course web to rest of chapter
- Introduction of an example for exercises
- Working with written assignment; consultation of the groups

