Self-Organising Systems

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Exercises – topics

- Group Work (max. 3 persons per group)

- Two types
  - Type 1: one exercise for each sub-topic (3 in total)
    - GA/CAs, Agents & Swarm Intelligence & Self-Organising Maps
  - Type 2: one smaller, one larger exercise (2 in total)
    - Pick one from GA/CAs, Agents OR Swarm Intelligence
    - Implement specific aspects (mostly visualisations) for Self-Organising Maps
      - For python; or some selected topics for the existing Java Solution

GA/Ants/Agents: Comparative experimentation

- Take 2 (or more) self-organising techniques presented so far (Ants, CAs, GAs, ...)
  - Can re-use existing implementations

- Find a set of ~2-3 different problem tasks, and compare how these techniques fit to solve them
  - Compare relative runtimes in regard to size of the problem
  - Compare time needed to find (good) solutions
  - Analyse for which type of problem which solution works better
  - Focus is on representing the problem domain & analysis
    - E.g combinatorial problems.: TSP, Vehicle Routing, Knapsack problem, Cutting Stock, Nurse scheduling..
    - Also: Rastrigin function (specific evaluation problem)