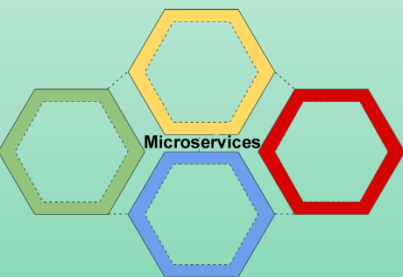
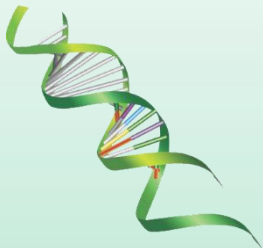


Bachelor- / Master Thesis

Topic:

A Generic Distributed Web-based Framework for Evolutionary Algorithms

Description:



Evolutionary Algorithms (EAs) are one of the most powerful techniques to solve many complex optimization problems. However, an efficient execution requires much computational power depending on the actual application. Therefore, many researchers in industry as well as in academic domains focus on parallelization of Evolutionary Algorithms. In the literature, three models for parallel EAs, namely the global model, the grid model and the island model are introduced [1].

In this thesis we will design and implement a framework for parallel EAs according to the above models based on two cutting-edge technologies, namely **containers** and **microservices**. In order to validate our design and architecture, we will integrate the EA GLEAM (General Learning Evolutionary Algorithm and Method) into the framework [2]. It will be evaluated using some benchmarks.

References

- [1] Luque, G., & Alba, E. (2011). Parallel genetic algorithms: theory and real world applications (Vol. 367). Springer.
- [2] Blume, C., & Jakob, W. (2009). GLEAM-general learning evolutionary algorithm and method: ein evolutionärer Algorithmus und seine Anwendungen (Vol. 32). KIT Scientific Publishing.

Required profile:

- ❖ Student of computer science, electrical engineering, mechanical engineering or related disciplines.
- ❖ Experience in **Java** and **Linux**
- ❖ Independent and creativity at work as well as interesting in exploring new technologies are desirable
- ❖ **Helpful:** previous knowledge in:
 - 1- Computational intelligence especially evolutionary algorithms
 - 2- Container and microservices technologies
 - 3- C and python

Contact:

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