Interaction and evolutionary algorithms
Breukelaar, R.

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Propositions

belonging to the dissertation

‘Interaction and Evolutionary Algorithms’

Ron Breukelaar

1. In a Cellular Automata it is not so much the number of neighbors that increases the ability to interact and combine information, it is the number of dimensions. *(this thesis)*

2. The process of inverse designing Cellular Automata with an Evolutionary Algorithm can be used to investigate the evolution of interaction in its most basic form and is a proof that interactions in nature like language, cooperation, emotion and even empathy can be the result of evolution. *(this thesis)*

3. Self-adaptive mutation rates in Evolutionary Algorithms are prone to stagnation when survival no longer implies progress. *(this thesis)*

4. Evolutionary Algorithms are good candidates for Human Algorithm Interaction due to their inherent flexibility, but the specific noise of the fitness function generated by the interaction with a human warrants a more in depth study before widespread implementation can be realized. *(this thesis)*

5. The computer game Tetris is proven to be NP-Hard. Even if a player is given the sequence of all pieces that are going to fall, no polynomial algorithm is known to play perfectly. Yet you don’t need to play perfectly to win. [Ron Breukelaar et al., Tetris is Hard, Even to Approximate, *International Journal of Computational Geometry & Applications*, Vol. 14, Nr. 1-2]

6. Computer Science is to Math and Physics, what Biology is to Psychology and Chemistry. Therefore Natural Computing has it all.

7. More and more of our social life is taking place online. This has both the potential to unite the world and alienate its people. Whatever happens, privacy seems to be the willing sacrifice.

8. Maybe Moore’s law will eventually hit a physical limit, but by the time it does artificial intelligence will have come up with their own law.

9. The American democracy is like an Evolutionary Strategy with only two offspring and an almost random selection operator running on a noisy, high dimensional and dynamic search space, and yet more people believe in democracy than believe in evolution.

10. If research is from Mars, business is from Gliese 581.

11. There is still nature in this world, but it’s in our nature to destroy it.