University of Cape Town

Computer Science Department

Seminar Series

Title: Evolutionary Computing 2.0: Evolutionary Engineering

Speaker: Prof. A. E. Eiben

Abstract:

Evolution is one of the major powers in the universe that has been studied for about two centuries. Computers, invented in the 20th century, made it possible to move from passively understanding to actively using evolutionary processes as tools in digital spaces. The related area is called Evolutionary Computing. I argue that in the 21st century (probably in the near future) it will be possible to make artificial evolutionary processes physically embodied, i.e., to implement and utilize them in real space and in real time. In other words, I envision the "Evolution of Things", rather than just the evolution of digital objects, leading to a new field of Embodied Artificial Evolution. In this talk I will present this vision in more detail, elaborate on some of the technical challenges, and explain why these developments will radically change our lives.

About the Speaker:

Prof. Eiben is one of the European early birds of Evolutionary Computing, his first EC paper dates back to 1989. He has published numerous research papers, and he co-authored the first comprehensive book on evolutionary computing, (Introduction to Evolutionary Computing, Springer, 2003, with J.E. Smith). He has been organizing committee member of all major international evolutionary conferences (CEC, EP, EuroGP, FOGA, GECCO, PPSN). He is editorial board member of five international journals (including JEC, IEEE TEC, GPEH) and he is series editor for Springer's book series on Natural Computing. He is also member of numerous science management bodies, such as the IEEE Computer Society Technical Committee on Computational Intelligence, Executive Board of the European Network of Excellence on Evolutionary Computing, Steering Committee for the Parallel Problem Solving from Nature (PPSN) conference series. He is also advisor and evaluator for the European Commission's IST funding program. His research is centered around evolutionary computing, ranging from fundamental issues such as reproduction operators, (self-) calibrating algorithms, and constraint handling, to applications in robotics, data mining, artificial life, and art.

Date: Tuesday, November 19, 2013

Time: 2-3pm

Location: LT 302 (Computer Science Building)