

An Evolutionary Computing Approach to Diabetic Foot Analysis

João Neves
Mediclinic Arabian Ranches
PO Box 282602
Dubai, United Arab Emirates
joaocpneves@gmail.com

Henrique Vicente
Departamento de Química
Universidade de Évora
Évora, Portugal
hvicente@uevora.pt

Diogo Couto, João Azevedo, Juliana Pereira, Filipa Ferraz, Victor Alves, José Neves*

Centro Algoritmi
Universidade do Minho
Braga, Portugal

{diogo.fp.couto, joao.p.s.a.9, filipaferraz}@gmail.com, julisete5359@hotmail.com, {valves, jneves}@di.uminho.pt

Abstract—Evolutionary Algorithms are based on heuristics, being able to find solutions to different kinds of problems. Knowledge representation techniques, in turn, aim the representation of the real world, using mechanical, logical or other descriptions. Usually, in the evolutionary computation area, the problems are clearly defined allowing straightforward comparisons of the performance of the competing entities. Indeed, the core purpose of this work is to describe an approach that aims to establish a dynamic virtual world of complex and interacting entities that map real cases of diabetic foot situations, understood here as the terms that make the extensions of mathematical logic functions in a competitive environment with a strict measure of selection, i.e. fitness is assessed by one criterion alone, its Quality-of-Information, grounded on a Case-Based Reasoning methodology to problem solving, that allows to deal with incomplete, unknown and even self-contradictory data.

Keywords—*Diabetic's foot; knowledge representation and reasoning; case-based reasoning; evolutionary decision support systems*