

GENERAL PURPOSE EVOLUTIONARY ALGORITHM TESTBED

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ABSTRACT

A flexible hardware testbed for Evolutionary Computation is developed in our research. The purpose is to realize a system with an ability to implement a wide variety of Evolutionary Computation applications. In this literature, General Purpose Evolutionary Algorithm Testbed (GPEAT) is described. GPEAT provides a flexible substrate for Evolutionary Computation applications on hardware platform using reconfigurable device such as FPGA. GPEAT consists of GPEAT core, debugging hardware, configuring GUI (Parameter-entry GUI) and debugging GUI. Parameter-entry GUI enables users to construct an Evolutionary Computation system on hardware with minimal knowledge on hardware designing. The GPEAT core obtains system parameters through the GUI and operates accordingly as users specify to find appropriate solutions from search space. Debugging interface is also provided through debugging hardware and debugging GUI to assist users in evaluating implemented system.