Mira / Álvarez

Artificial Intelligence and Knowledge Engineering Applications: A Bioinspired Approach

First International Work-Conference on the Interplay Between Natural and Artificial Computation, IWINAC 2005, Las Palmas, Canary Islands, Spain, June 15-18, 2005, Proceedings, Part II

The computational paradigm considered here is a conceptual, theoretical and formal framework situated above machines and living creatures (two instant- tions), su?ciently solid, and still non-exclusive, that allows us: 1. tohelpneuroscientiststoformulateintentions,questions,experiments,me- ods and explanation mechanisms assuming that neural circuits are the p- chological support of calculus; 2. to help scientists and engineers from the ?elds of arti?cial intelligence (AI) and knowledge engineering (KE) to model, formalize and program the c- putable part of human knowledge; 3. to establish an interaction framework between natural system computation (NSC) and arti?cial system computation (ASC) in both directions, from ASC to NSC (in computational neuroscience), and from NSC to ASC (in bioinspired computation). With these global purposes, we organized IWINAC 2005, the 1st International Work Conference on the Interplay Between Natural and Arti?cial Computation, whichtookplaceinLasPalmasdeGranCanaria,CanaryIslands(Spain),during June 15–18, 2005, trying to contribute to both directions of the interplay: I: From Arti?cial to Natural Computation. What can computation, arti?cial intelligence (AI) and knowledge engineering (KE) contribute to the und- standing of the nervous system, cognitive processes and social behavior? This is the scope of computational neuroscience and cognition, which uses the computational paradigm to model and improve our understanding of natural science.

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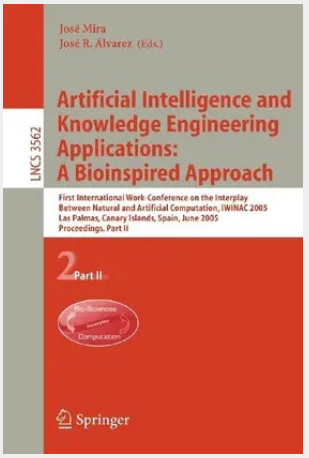

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