

Bio-inspired machines on High Performance Computing platforms: a multidisciplinary approach

A. Riscos-Núñez & M.J. Pérez-Jiménez

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- Dpt. Computer Science & Artificial Intelligence (RGNC)
- Dpt. Computer Architecture & Technology
- Dpt. Condensed Matter Physics
- Dpt. Electronical Engineering
- external collaborators

- Main goal: tackling major challenges in today's society.
Complex systems modeling
 - zebra mussel
 - fault diagnosis
 - ...
- Bridging theory and practice
 - developing new bio-inspired computing paradigms
 - developing efficient simulation software (HPC)

General goals

- 1 Specification of new bio-inspired **devices** / machines, oriented towards HPC simulation.
- 2 Design and implementation of parallel **algorithms and hardware** architectures for complex systems modeling, based on bio-inspired computing paradigms.
- 3 Study of complexity and **performance** of the developed models and algorithms, and characterization of the obtained speed-up wrt traditional architectures.
- 4 **Applications** of the developed models and tools to real and relevant case studies.

Please join in!

- **Theoretical foundations**
- **Computational complexity**
- **Applications**
- **Simulators**
- **Implementation**