



UNIVERSITATEA  
BABEȘ-BOLYAI



# CSC & IS

**Centrul pentru studiul complexității  
Intelligent Systems group**

# [Meta]heuristics

Nature inspired metaheuristics

- Evolutionary computing;
- Differential evolution;
- Swarm intelligence;
- Ant colony optimization;
- Hybrid methods;

# Optimization and decision making

- Large scale optimization;
- Multiobjective optimization;
  - Manyobjective optimization;
- Combinatorial optimization;
- Real world applications;
  - Quality of services;
  - Adaptive web service composition;
- Strategic interactions (SI);
  - Multicriteria decision making;

# Algorithmic Game Theory

- Evolutionary equilibrium detection;
- Many-player games;
- Games on networks, spatial games;
- Multi-criteria games;
- Nash equilibrium refinements;
- Applications (cognitive radios, social systems, etc.);
- Dynamic games;

# Study of complexity

- Game theoretical tools for complexity analysis;
- GT analysis of emergent phenomena and complex systems (environments);
- Structure detection in complex networks;
- Emergence of cooperation intra/inter groups;
- Modeling social interactions;



# Study of complexity

## *Managing complexity in wireless communication systems*

- Autonomy vs. regulation in complex emerging environments;
- Rules of behaviour/norms;
- Socio-technical systems  
and techno-social systems;
- Interference/mitigation/coordination algorithms in a wireless communications environment;
- Power allocation game for interference mitigation in a real world experiment testbed;

# Economics

- Computational Economics;
- Behavioural Economics;
- Simulations;
- Dynamic games;
- Non-equilibrium social sciences;
- Non-equilibrium Economics;



# Mulțumim pentru atenție!

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