1. Real time microscopic simulation, generation, animation and rendering of crowds with varied characters using the GPU.
2. Parallel simulation and visualization of large crowds using HPC heterogeneous clusters.

**Summary**

Simulation and visualization in real time of large crowds with varied animated characters. These are explored from several fronts

- **Computer Graphics:**
  - Generation of diverse characters (GoD)
  - Animation variety and transfer
  - Level of Detail (LoD)
- **Agent Intelligence:**
  - Effective search of neighbours
  - Collision avoidance
  - Physical, psicological and cultural characteristics of agents
- Optimal navigation
- Parallelism:
  - Simulation with one node parallelism
  - Simulation on a cluster
  - Generating visualization in HPC heterogeneous clusters
  - Diverse interactive graphical clients
- Real data and learning:
  - Using real trajectories
  - From video
- Real environments:
  - OpenStreetMaps

**Objectives**

Real time microscopic simulation, generation, animation and rendering of crowds with varied characters using the GPU and heterogeneous architectures.

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*Source URL (retrieved on 29 gen 2018 - 14:11):* https://www.bsc.es/ca/research-development/research-areas/extremescale-mathematics-algorithms/extremescale-visualization