Hovering Information

Concept and System
Hovering Information is a self-organising user-generated location-aware information dissemination service over a dynamic set of mobile devices (nodes). Pieces of hovering information are attached to an anchor area/location and replicas of pieces are stored in different nodes of limited buffer size. The service works without making any use of a server.

Attractor Point and Location-Based Caching
One of the main dependability requirements of hovering information is to keep itself available at its anchor area by actively replicating itself: Attractor Point Algorithm (AP) with replication factor $k_R$; and by caching the most relevant replicas: Location-Based Caching (LBC). Other benchmark algorithms: Broadcast-Based replication algorithm (BB), Generation-Based Caching (GBC) and no caching (None).

Critical Number of Nodes and Absorption Limits
Simulations showed that at least three nodes per anchor area are required to get high availability rates and that the absorption limits of the system have not been reached meaning that the system is scalable.

Load-Balancing – Emergence Property
Simulations showed that a load-balancing property emerges allocating in an optimal way the different replicas among the buffers of the nodes.

Potential Applications
Stigmergy-based systems (exploring robots), disaster areas (rescue systems) and vehicle networks (traffic management).

Published Works