

Geru: Optimising Data Gathering in Resource-constrained Networks

<http://www.hiit.fi/ada/geru>

The *Geru* project conducts fundamental algorithmic research on data gathering in wireless sensor networks. Our focus is on computationally efficient methods, computational complexity, and mathematically provable bounds of optimality.

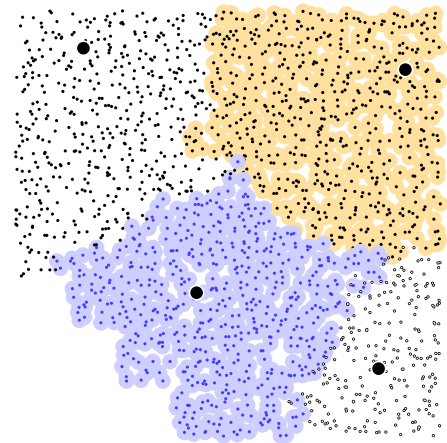
The research project is funded by the Academy of Finland during the years 2007–2009. The project constitutes a continuation of the work undertaken in the Academy of Finland project Networking and Architecture in Proactive Systems (NAPS, 2003–2005).

Researchers

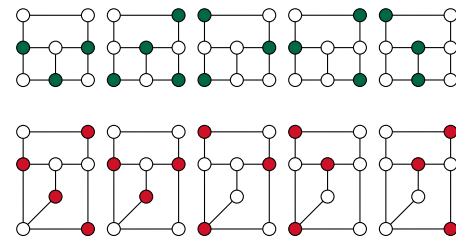
- Dr. Patrik Floréen, researcher in charge
- Dr. Jukka Suomela, researcher
- Dr. Petteri Kaski, affiliated researcher
- Dr. Valentin Polishchuk, affiliated researcher

Publications

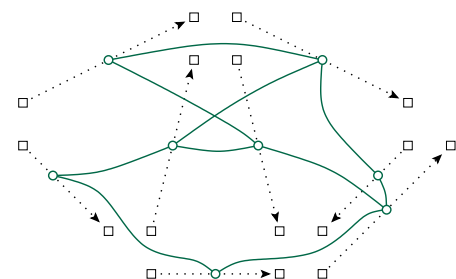
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Given a suitable set of anchor nodes (large dots), a sensor network can perform sleep scheduling near-optimally by using a *local approximation algorithm* where each sensor needs information from its local neighbourhood only [1].



A *sleep schedule* consists of dominating sets and associated time periods; an *activity schedule* consists of independent sets and associated time periods [3].



A wireless networks and a *local conflict graph*. In local conflict graphs, maximum-weight independent set can be approximated within a constant factor but there is no PTAS [4, 9].