

ACM/Springer Mobile Networks and Applications (MONET) Special Issue on “Collaborative Computing: Networking, Applications and Worksharing”

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Recent advances in computing have contributed to the growing interconnection of our world, including 3 G/4 G wireless networks, web 2.0 technologies, computing clouds, just to mention a few. The potential for collaboration among various components has exceeded the current capabilities of traditional approaches to system integration and interoperability. As the world heads towards unlimited connectivity and global mobile computing, collaboration becomes one of the fundamental challenges. We view collaborative computing as the glue that brings the components together and also the lubricant that make them work together. The 4th *International Conference on Collaborative Computing: Networking, Applications and Worksharing (CollaborateCom)* serves as a premier international forum for discussion among researchers and practitioners interested in collaborative networking, technology and systems, and applications.

A total of 70 submissions were received for *CollaborateCom2008*. The Program Committee selected 26 papers

(acceptance rate of 37.14%) after a rigorous review and a follow up discussion. After further review of the accepted papers immediately after the conference, we have selected the four papers that are related to the theme of *CollaborateCom* and mobile computing.

In the first paper titled “*A Hybrid Key Predistribution Scheme for Sensor Networks Employing*,” Panyim *et al.* considers mobility of sensor nodes due to spatial retreat of nodes under jamming attacks. Such jamming attacks can easily disrupt the connectivity of sensors. The authors propose a *hybrid key pre-distribution* scheme that supports such spatial retreat strategies to cope with jamming attacks. The proposed scheme integrates the properties of random and deployment knowledge based key pre-distribution schemes. The authors show that the proposed scheme provides high key connectivity in presence of jamming attacks while reducing the number of isolated nodes. The authors also present a performance evaluation through simulations and analysis.

In the second paper titled “*Security through Collaboration and Trust in MANETs*,” Li *et al.* present a collaborative and trust-based outlier detection approach to defend against attacks against Mobile Ad Hoc Networks (MANETs). The key premise here is that attacks on MANETs related to packet dropping, packet modification and packet misrouting involve malicious nodes whose behavior is an outlier. The proposed approach takes into account a node’s reputation within the MANET. The authors present simulation results to demonstrate efficiency and accuracy of the proposed approach.

In the third paper titled “*A Battery-Aware Algorithm for Supporting Collaborative Applications*,” Rollins *et al.* explore how laptop users use their batteries and the cost of using laptops in common P2P networks such as Gnutella. The authors propose and evaluate a battery-aware alternative to Gnutella’s ultrapeer selection algorithm. The results

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indicate that a large portion of laptop users can participate in system maintenance without sacrificing any of their battery. These show great promise for collaborative applications, such as collaborative data gathering.

In the fourth and the last paper titled “*Supporting mobile collaboration in spatially distributed workgroups with digital interactive maps*,” Meyer *et al.* present an approach for a Collaborative Map – *CoMa* - to visualize and provide collaboration functionality by exploiting spatial context of the members of a distributed group. Such an approach would make a number of location-related cooperation methods feasible – these methods for instance could be getting an overview of the spatial distribution of team members, identifying an ad-hoc meeting place nearby, or chatting with a

group member with a specific expertise. *CoMa*, thus, provides a context aware mobile collaborative system that can support a wide range of applications where human resources have to be coordinated in a spatial context.

We strongly believe that the selected papers make a significant contribution to researchers, practitioners, and students working in the areas of collaborative mobile systems and applications.

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