

# Energy Efficient Smart Cities



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## CURRENT RESEARCH

### Context aware computing systems for effective energy management

Imagine walking into a dark room, and it's not just that the lights come on but the temperature also changes. Augmenting the environment around you will not only enhance user experience, but also help conserve energy. Therefore, energy consumption is a critical constraint in the design of modern computer systems. Dr. Tajana Rosing, with her System Energy Efficiency Lab (SEELab) at the University of California, San Diego, is addressing energy efficiency in systems of all sizes, from sensor nodes to data centers, transport networks, and power grids, as generating and processing information start to encompass several computing domains. SEELab research includes efficient distributed data collection and aggregation to processing and adapting to this data in smart cities, data centers, and the distributed smart grid.

As consumer sensing and data are migrating to a new concept due to the growth in consumer devices that are operating their own infrastructure, researchers at SEELab find it important to assess the infrastructure and motivate useful actuations. At SEELab, an entire group of researchers is dedicated to working on mobile and embedded systems in wireless sensor and networks, focused on optimizing performance in the design process of the systems with limited energy sources. Ultimately, Dr. Rosing hopes to facilitate excellent user experience while maximizing efficiency of embedded devices, as well as provide sensing data and user information. Other researchers at the lab can then quantify and classify data and turn them into useful information relevant to applications that need them using context and semantic ontology, and develop algorithms that can facilitate user preference, energy management, and grid...

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## AFFILIATION

 University of California, San Diego

## EDUCATION

- Ph.D. in Electrical Engineering 2001, Stanford University
- M.S. in Engineering Management 2000, Stanford University
- M.S. in Electrical and Computer Engineering 1993, University of Arizona
- B.S. in Electrical Engineering 1992, Northern Arizona University

## RESEARCH AREAS

Technology, Computational Sciences / Mathematics, Electronics / Sensors, Informational Sciences / Internet

## FUNDING REQUEST

Your contributions will support the continued research of Dr. Tajana Rosing and her team at the University of California, San Diego as they enable context aware technologies in the larger smart cities. Donations will help fund the annual \$60K required to support each student for enrollment, registration, stipend, and research allowance. Partner with the robust team at SEELab to advance technologies that both facilitate daily life and save energy.

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