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# When Database Systems meet Sensor Networks


## Prof. Silvia Nittel

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**Abstract:** Recent advances in hardware and operating systems have created a new generation of small, low-cost computing devices with on-board sensors which offer increasingly powerful processing and wireless communication capabilities such as the Berkeley Motes. Large collections of these sensors with various functions can be distributed over a geographic region, facilitating the measurement of attributes such as temperature or ozone level over that spatial region. The data generated by such sensor networks is available continuously, in real-time, and on a finer scale that was ever before possible. Individual sensor nodes collaborate in an ad-hoc way with respect to data collection and processing. This talk will introduce current approaches and state of the art in the area of database systems to achieve novel data management techniques for sensor networks. These techniques allow users to write applications via a SQL-like interface using declarative statements while the database system automates and optimizes the execution of such queries 'under the hood'. This approach simplifies sensor network application programming, however, poses new challenges in database research.


**Bio:** Dr. Nittel's main research interests are in database systems, distributed, heterogeneous systems, and mobile, sensor-based computing. Dr. Nittel received her Ph.D. in 1994 from the Computer Science Department of the University of Zurich where she worked on high-performance storage techniques for extensible and object-oriented DBMS. She joined the UCLA Computer Science Department as postdoctoral researcher in 1995, and worked on integration platforms for heterogeneous spatial data. From 1998 to spring 2001, she was the Co-Director of the UCLA Data Mining Lab. Her research focused on high performance distributed tools for scientific data mining and scientific collaboration. Her current research focuses on extending database technology to support mobile and sensor-based data environments such as augmented virtual reality, continuously moving objects, and geo sensor networks. This research is currently funded with grants from NSF, NGA and NASA.

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Admission is free. Dinner is provided. Directions will be provided upon your registration. Please reserve your seat by email: Dr. Ali Abedi, Chapter Chair, **abedi@ieee.org**

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