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Abstract—Wireless sensor networks (WSNs) have been around for more than a decade. Although the research community has become increasingly aware of the importance of real-world deployments, however, the latter represent a tiny fraction of the literature on WSNs. Moreover, of these few real-world experiences, those reporting about long-term, operational systems are themselves a small fraction of the total. In this talk, I will present past and ongoing research from my research group (http://d3s.disi.unitn.it), revolving around real-world WSN deployments targeting real needs. These include: the long-term structural health monitoring of a medieval tower; the closed-loop control of adaptive lighting in an operational road tunnel; the understanding of social behavior of wildlife. In these experiences, we started by applying pre-existing results and tools. However, the real world is often more creative than researchers, and it pushed our research agenda in unexpected directions. The talk gives a brief account of the research roller-coaster we experienced in the last few years.

I. SPEAKER’S BIO

Gian Pietro Picco is a Full Professor in the Department of Information Engineering and Computer Science (DISI) at University of Trento, Italy. Previously, he has been on the faculty of Washington University in St. Louis, MO, USA (1998-1999) and Politecnico di Milano, Italy (1999-2006). The goal of his current research is to ease the development of modern distributed systems through the design and implementation of appropriate programming abstractions and of communication protocols efficiently supporting them. His work spans the research fields of software engineering, middleware, and networking, and is oriented in particular towards wireless sensor networks, mobile computing, and large-scale distributed systems. He is a member of the editorial board of ACM Trans. on Sensor Networks (TOSN). In 2007, at the Int. Conf. on Software Engineering (ICSE’07) he was the recipient of the "Most Influential Paper from ICSE’97" Award. Two of the deployments described in this talk received a Best Paper Award at IPSN’09 and IPSN’11. More information at http://disi.unitn.it/ picco.