Foreword

Research on context-awareness gained a huge momentum in the early years of the new millennium. A whole community identified in context-awareness very promising approaches to solve open issues in several domains. For instance, while mobile phones started to evolve into powerful computing platforms, context-awareness delivered a tool to compensate restrictions which came along with these resource limited devices and their weak connectivity.

With devices scaling further down into smart dust, being interconnected and interwoven into the fabrics of our daily life and growing exponentially in numbers at the same time, context-awareness still offers several opportunities for original research in ubiquitous computing. Very active areas of research include, for instance, new context sensing technologies, inferring context such as human activities from low level sensor data, privacy and sharing of context information, or system design aspects.

This book, *Context-Aware Mobile and Ubiquitous Computing for Enhanced Usability: Adaptive Technologies and Applications,* draws a bow from very specific, technology-oriented aspects of recent findings in research on context-awareness to broad, application and usability-oriented aspects including also human factors. It elaborates whether ontologies and other modeling approaches can support context-based adaptation, compares different context management approaches for medium and large scale ubiquitous systems, and illustrates the applicability of context-awareness for service oriented architectures in general and specifically mobile service platforms. A large fraction of the book is dedicated to security as well as in particular typical privacy concerns and show approaches how to solve the issues. The editors awarded the importance of the interaction between the human users and any context-aware system with an interesting section on usability aspects.

Altogether, this book gives an interesting overview of recent findings in many relevant areas of research on context-awareness. Moreover, it can inspire the community to come up with entirely new ideas in this fascinating research area.

Prof. Dr. Thomas Strang
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Thomas Strang *studied computer science at the University of Technology (RWTH) in Aachen and received his Diploma degree (Dipl.-Inform.) in 1998. At this time his special interests focused on communications and distributed systems, including high speed networks and telecommunications, local area networks, multimedia communications, computer graphics and security. His diploma thesis was about a video gateway to support video streaming to mobile clients. Parallel to university he worked in industry from 1988 to 2000, where he gained experiences in design, development and management of several projects in the area of large scale security systems. Since July 2000 he has been working as a researcher in the Institute of Communications and Navigation at the German Aerospace Center (DLR) in Oberpfaffenhofen, Germany. Here his research focus has been on ubiquitous and pervasive computing, location- and context-awareness, service discovery and execution frameworks, Semantic Web and smart mobile devices. Since 2004 he has been responsible for the Institute's programme in transportation research, which includes new services for intelligent transportation systems and ad-hoc, robust and reliable vehicle-to-vehicle communications. In 2003 he was awarded a Doctor's degree in natural sciences (Dr. rer. nat.) at the University of Munich, Germany, with a dissertation on service interoperability in ubiquitous computing environments. In October 2004 he additionally accepted an appointment for a professorship in computer science at the University of Innsbruck, Austria. Since 2005, he has been an Executive Director as well as acting Head of Institute at the Digital Enterprise Research Institute (DERI) in Innsbruck, Austria, where he also leads a research group on ubiquitous services and has also given lectures at the University of Munich.*