

Smart Sensor Systems:

Emerging Technologies and Applications

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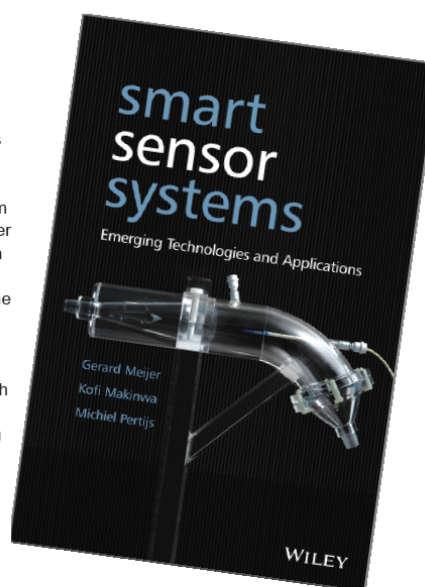
With contributions from an internationally-renowned group of experts, this book uses a multidisciplinary approach to review recent developments in the field of smart sensor systems, covering important system and design aspects. It examines topics over the whole range of sensor technology from the theory and constraints of basic elements, physics and electronics, up to the level of application-orientated issues.

Developed as a complementary volume to *Smart Sensor Systems* (Wiley 2008), which introduces the basics of smart sensor systems, this volume focuses on emerging sensing technologies and applications, including:

- State-of-the-art techniques for designing smart sensors and smart sensor systems, including measurement techniques at system level, such as dynamic error correction, calibration, self-calibration and trimming
- Circuit design for sensor systems, such as the design of precision instrumentation amplifiers
- Impedance sensors, and the associated measurement techniques and electronics that measure electrical characteristics to derive physical and biomedical parameters, such as blood viscosity or growth of micro-organisms
- Complete sensor systems-on-a-chip, such as CMOS optical imagers and microarrays for DNA detection, and the associated circuit and micro-fabrication techniques
- Vibratory gyroscopes and the associated electronics, employing mechanical and electrical signal amplification to enable low-power angular-rate sensing
- Implantable smart sensors for neural interfacing in bio-medical applications
- Smart combinations of energy harvesters and energy-storage devices for autonomous wireless sensors

Smart Sensor Systems: Emerging Technologies and Applications will greatly benefit final-year undergraduate and postgraduate students in the areas of electrical, mechanical and chemical engineering, and physics. Professional engineers and researchers in the microelectronics industry, including microsystem developers, will also find this a thorough and useful volume.

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