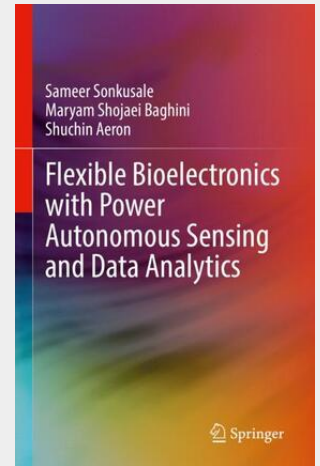


Flexible Bioelectronics with Power Autonomous Sensing and Data Analytics

This book provides readers with an introduction to the materials and devices necessary for flexible sensors and electronics, followed by common techniques for fabrication of such devices and system-level integration. Key insights into fabrication and processing will guide readers through the tradeoff choices in designing such platforms. A comprehensive review of two specific, flexible bioelectronic platforms, related to smart bandages for wound monitoring and thread-based diagnostics for wearable health, will demonstrate practical application at the system level. The book also provides a unique electrical engineering perspective by reviewing circuit architectures for low noise signal conditioning of weak signals from sensors, and for low power analog to digital converters for signal acquisition. To achieve energy autonomy, authors provide several example of CMOS energy harvesting front end circuits and voltage boosters. Beyond circuit architectures, the book also provides a review of the modern theory of sampling and recovery of sparse signals, also known as compressed sensing. They then highlight how these principles can be leveraged for design and implementation of efficient signal acquisition hardware and reliable processing of acquired data for flexible electronic platforms.

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