1. Record Nr. UNINA9910863185603321

Titolo	Innovative Technologies and Signal Processing in Perinatal Medicine : Volume 1 / / edited by Danilo Pani, Chiara Rabotti, Maria Gabriella Signorini, Laura Burattini
Pubbl/distr/stampa	Cham : , : Springer International Publishing : , : Imprint : Springer, , 2021
ISBN	3-030-54403-6
Edizione	[1st ed. 2021.]
Descrizione fisica	1 online resource (VIII, 232 p. 96 illus., 77 illus. in color.)
Disciplina	618.32075
Soggetti	Biomedical engineering Signal processing Biotechnology Radiology Biomedical Engineering and Bioengineering Signal, Speech and Image Processing
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Includes index.
Nota di contenuto	Introduction -- Innovative Technologies for Intrauterine Monitoring of Predictive Markers of Vascular and Neurological Well-being -- Back to the Future: Prenatal Life and Perinatal Programming -- Fetal Cardiological Diagnostics in the Clinical Practice -- Real-time Telecardiology: Methods and Tools -- From Technology Innovation to Clinical Implementation – a Perspective From the Industry -- Fetal Cardiac Signal Processing Techniques -- T-wave Alternans Identification in Direct and Indirect Fetal Electrocardiography -- Ultrasound Imaging: From Physics to Fetal Anatomical and Functional Measurements -- Fetal Magnetocardiography -- Cardiotocography for Fetal Monitoring and Physiological Rationale Behind It -- Advanced Signal Processing and Modelling Techniques in Fetal Heart Rate Signal Analysis -- Intrapartum Fetal Heart Rate Analysis: From Fractal Features to Sparse Feature-selection Based Classification -- Monitoring Uterine Activity During Pregnancy and Delivery by Electrohysterography: Background, Modeling and Signal Analysis -- Innovative Devices and

Techniques for Multimodal Fetal Health Monitoring -- Advanced Signal Processing Algorithms for Cardiorespiratory Monitoring in the Neonatal Intensive Care Unit.

Sommario/riassunto

Pregnancy is a critical time for the health of the mother and the fetus, with important potential risks for both. Tools for antenatal diagnosis and pregnancy monitoring can support prevention and management of potential risks and complications. In particular, the perinatal period, spanning from the third trimester of pregnancy up to one month after birth, is the most critical for the baby. For this reason, in the last decades, biomedical engineering supported and fostered the scientific research towards the identification of new models, parameters, algorithms, and tools that can improve the quality of fetal monitoring, predict the outcomes and allow physicians to intervene in an appropriate manner to ensure a healthy future for the baby. This book follows the First International Summer School on Technologies and Signal Processing in Perinatal Medicine and reflects some of its most important master lectures. It represents a valuable guide for students and young researchersapproaching this topic for the first time, as well as experienced researchers and practitioners looking for a clear representation of the themes and techniques presented by recognized experts in the field. Presents current and innovative technologies for fetal and neonatal monitoring Emphasis on both technology/signal processing and clinical aspects Offers a clear didactic approach to the subject matter.