

1. Record Nr.	UNINA9910751388203321
Titolo	Perinatal, Preterm and Paediatric Image Analysis : 8th International Workshop, PIPPI 2023, Held in Conjunction with MICCAI 2023, Vancouver, BC, Canada, October 12, 2023, Proceedings // edited by Daphna Link-Sourani, Esra Abaci Turk, Christopher Macgowan, Jana Hutter, Andrew Melbourne, Roxane Licandro
Pubbl/distr/stampa	Cham : , : Springer Nature Switzerland : , : Imprint : Springer, , 2023
ISBN	3-031-45544-4
Edizione	[1st ed. 2023.]
Descrizione fisica	1 online resource (128 pages)
Collana	Lecture Notes in Computer Science, , 1611-3349 ; ; 14246
Disciplina	618.9200754
Soggetti	Image processing - Digital techniques Computer vision Artificial intelligence Application software Computer Imaging, Vision, Pattern Recognition and Graphics Artificial Intelligence Computer and Information Systems Applications
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Intro -- Preface -- Organization -- Contents -- Fetal Brain Image Analysis -- FetMRQC: Automated Quality Control for Fetal Brain MRI -- 1 Introduction -- 2 Methodology -- 2.1 Data -- 2.2 Manual QA of Fetal MRI Stacks -- 2.3 IQMs Extraction and Learning -- 3 Results and Discussion -- 4 Conclusion -- References -- A Deep Learning Approach for Segmenting the Subplate and Proliferative Zones in Fetal Brain MRI -- 1 Introduction -- 2 Methods -- 2.1 Cohort, Datasets and Preprocessing -- 2.2 Neuroanatomical Parcellation of Transient Regions -- 2.3 Automated Segmentation of Transient Regions -- 2.4 Qualitative and Quantitative Analyses of Transient Regions -- 3 Results and Discussion -- 3.1 Qualitative Analysis of Transient Regions in Atlas Space -- 3.2 Quantitative Analyses of Transient Regions in Subject Space -- 3.3 Quantitative Comparison of Transient Volumes in Fetuses with Ventriculomegaly and Controls -- 4 Conclusion and Future Work

-- References -- Combined Quantitative T2\* Map and Structural T2-Weighted Tissue-Specific Analysis for Fetal Brain MRI: Pilot Automated Pipeline -- 1 Introduction -- 2 Methods -- 2.1 Datasets, Acquisition and Pre-processing -- 2.2 Automated 3D T2\* Fetal Brain Reconstruction in T2w Space -- 2.3 Automated 3D T2\* Fetal Brain Tissue Segmentation -- 2.4 Analysis of Brain Development in Combined T2w+T2\* Datasets -- 2.5 Implementation Details -- 3 Experiments and Results -- 3.1 Automated 3D T2\* Fetal Brain Reconstruction in T2w Space -- 3.2 Automated 3D T2\* Fetal Brain Tissue Segmentation -- 3.3 Analysis of Brain Development in T2w+T2\* Datasets -- 4 Discussion and Conclusions -- References -- Quantitative T2 Relaxometry in Fetal Brain: Validation Using Modified FaBiAN Fetal Brain MRI Simulator -- 1 Introduction -- 2 Methodology -- 2.1 Quantitative T2 Measurement Framework for Fetal MRI -- 2.2 Overview of the FaBiAN Phantom. -- 2.3 The Fetal Brain Model -- 2.4 Modelling Fetal Motion -- 2.5 Modelling Signals with Slice Profiles -- 2.6 Sampling K-Space -- 2.7 Modelling the Signals for the Dictionary -- 2.8 Simulated Experiments -- 2.9 Fetal Brain Measurements -- 3 Results -- 3.1 Simulated Fetal MRI -- 3.2 Reconstruction of T2 Maps from Simulated Fetal Data -- 3.3 Fetal Measurements -- 4 Discussion -- 5 Conclusion -- References -- Fetal Cardiac Image Analysis -- Towards Automatic Risk Prediction of Coarctation of the Aorta from Fetal CMR Using Atlas-Based Segmentation and Statistical Shape Modelling -- 1 Introduction -- 1.1 Contributions -- 2 Methods -- 2.1 Dataset Description -- 2.2 Automated Segmentation -- 2.3 Statistical Shape Analysis -- 3 Results -- 3.1 Segmentation -- 3.2 Statistical Shape Analysis -- 4 Discussion -- 5 Conclusion -- References -- The Challenge of Fetal Cardiac MRI Reconstruction Using Deep Learning -- 1 Introduction -- 2 Methods -- 3 Results -- 4 Discussion -- 5 Conclusion -- References -- Placental and Cervical Image Analysis -- Consistency Regularization Improves Placenta Segmentation in Fetal EPI MRI Time Series -- 1 Introduction -- 2 Methods -- 2.1 Consistency Regularization Loss -- 2.2 Siamese Neural Network -- 2.3 Implementation Details -- 3 Experiments -- 3.1 Dataset -- 3.2 Baseline Methods -- 3.3 Evaluation -- 3.4 Results -- 4 Limitations and Future Work -- 5 Conclusions -- References -- Visualization and Quantification of Placental Vasculature Using MRI -- 1 Introduction -- 1.1 MRI Acquisitions and Differing Contrasts -- 2 Methods -- 2.1 Data Acquisition -- 2.2 Image Quantification Metrics -- 2.3 Quantification of Vessel Segmentation -- 2.4 Statistics -- 2.5 Segmentation Performance Evaluation -- 3 Results -- 3.1 Validation from Micro-CT -- 4 Discussion -- 5 Conclusion -- References. -- The Comparison Analysis of the Cervical Features Between Second-and Third-Trimester Pregnancy in Ultrasound Images Using eXplainable AI -- 1 Introduction -- 2 Method -- 2.1 eXplainable Artificial Intelligence (XAI) - CAM Based Methods -- 2.2 Deep Neural Network Model for Classification Task -- 2.3 Dataset and Preprocessing -- 2.4 Experimental Design -- 3 Results -- 3.1 Comparison of Heatmap Between Second- And Third-Trimester -- 3.2 Difference in Heatmap with and Without Fetal Head -- 3.3 Cross Validation Using Another Institution -- 4 Discussion and Conclusion -- References -- Infant Video Analysis -- Automatic Infant Respiration Estimation from Video: A Deep Flow-Based Algorithm and a Novel Public Benchmark -- 1 Introduction -- 2 Related Work -- 3 AIR-125: An Annotated Infant Respiration Dataset -- 4 Methodology -- 4.1 AirFlowNet Architecture -- 4.2 Spectral Bandpass Loss -- 5 Evaluation and Results -- 5.1 Experimental Setup -- 5.2 Results and Analysis -- 6 Conclusion -- References -- Author Index.

---

This book constitutes the refereed proceedings of the 8th International Workshop on Perinatal, Preterm and Paediatric Image Analysis, PIPPI 2023, held in conjunction with the 26th International Conference on Medical Imaging and Computer-Assisted Intervention, MICCAI 2023, in Vancouver, Canada, in October 2023. The 10 full papers presented at PIPPI 2023 were carefully reviewed and selected from 14 submissions. PIPPI 2023 workshop complements the main MICCAI conference by providing a focused discussion on the challenges of image analysis techniques as applied to the fetal and infant settings.

---