**Appendix 9: Key findings**

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| **Dataset Name** | **Key Findings** | **Potential Applications in Clinical Practice** | **Current Usage in AI Research** |
| FPUS23: An Ultrasound Fetus Phantom Dataset with Deep Neural Network Evaluations for Fetus Orientations, Fetal Planes, and Anatomical Features | High accuracy in detecting diagnostic planes, fetus orientation, and fetus anatomy; models trained on FPUS23 dataset can be fine-tuned with minimal effort for real-world datasets | Identification of diagnostic planes, fetus orientation, anatomical features | Models trained on FPUS23 dataset can be fine-tuned for real-world datasets |
| Large-scale annotation dataset for fetal head biometry in ultrasound images | High annotation reliability, broad compatibility with various formats and frameworks | Detailed annotations of fetal head biometry | Promotes reuse in various medical and computational studies |
| The JNU-IFM dataset for segmenting pubic symphysis-fetal head | Dataset useful for developing and evaluating automated SP-fetal head segmentation algorithms and image classification algorithms | Development of automatic measurement algorithms, evaluation of other ITU parameters | Tracking efficacy of automated segmentation algorithms |
| The construction and application of an ultrasound and anatomical cross-sectional database of structural malformations of the fetal heart | The database helps in training imagers to recognize cardiovascular pathology during fetal heart screening; identified 43 different types and 80 different subtypes of congenital heart defects | Training imagers to recognize cardiovascular pathology during fetal heart screening | Development of teaching software for global access |
| PSFHS: Intrapartum ultrasound image dataset for AI-based segmentation of pubic symphysis and fetal head | Dataset facilitates monitoring of labor progression, enhances AI model development | Monitoring of labor progression | Enhances AI model development |
| How much can AI see in early pregnancy: A multi-center study of fetus head characterization in week 10–14 in ultrasound using deep learning | Fetus Framework achieved high accuracy and AUC in both internal and external tests; outperformed classic deep learning models and human experts in standard and non-standard sagittal view classification | Potential application in other obstetrical ultrasound examinations | Improved accuracy and F1-Score in fetal malformation classification when using Fetus Framework selected images |
| Generalisability of fetal ultrasound deep learning models to low-resource imaging settings in five African countries | Transfer learning approach effectively adapts models to new centers with minimal effort and small sample sizes, achieving high performance in low-resource settings | Development of highly generalizable solutions for AI usability in low-resource settings | Evaluates models on missing categories |
| Automated measurement of fetal head circumference using 2D ultrasound images | The CAD system performs comparably to an experienced sonographer; shows similar or superior results compared to other systems published in literature | Automated measurement of HC, estimation of gestational age (GA) | Evaluation on a large test set including data from all trimesters |
| Fetal Abdominal Structures Segmentation Dataset Using Ultrasonic Images | The dataset provides a comprehensive collection of high-quality ultrasound images for the segmentation of fetal abdominal structures, facilitating accurate measurement of abdominal circumference | Accurate measurement of abdominal circumference | Potential for further research in improving AI-based segmentation techniques |
| Automated annotation and quantitative description of ultrasound videos of the fetal heart | The method achieved promising results with an average frame rate of about 40 frames per second and significant improvement in prediction accuracy with particle filtering | Detection and classification of fetal heart views, estimation of cardiac phase and orientation | Extending the model to cope with and identify cases of congenital heart disease (CHD) |
| Real-time diameter of the fetal aorta from ultrasound | The proposed architecture significantly reduces the mean squared error and relative error compared to previous methods, achieving real-time processing speeds | Measurement of the vascular diameter of the fetal abdominal aorta | Evaluating the solution in scenarios with lack of cyclic consistency, vessel movement, and concurrent estimation of cardiac cycle and vessel diameter |
| Values and validity of fetal parameters by ultrasound and Doppler as markers of fetal lung maturity | Proximal tibial epiphyses showed the highest sensitivity (91%) and specificity (95%) for predicting fetal lung maturity; no single parameter alone could definitively predict fetal lung maturity | Assessment of fetal lung maturity to predict neonatal respiratory distress syndrome (RDS) | Further studies to validate the results and explore additional parameters for predicting fetal lung maturity |
| Generative Diffusion Model Bootstraps Zero-shot Classification of Fetal Ultrasound Images In Underrepresented African Populations | FU-LoRA outperforms baseline methods with a 13.73% increase in zero-shot classification accuracy; achieved highest accuracy of 82.40%, highest F-score of 86.54%, and highest AUC of 89.78% | Improvement in zero-shot classification accuracy of fetal ultrasound images in low-resource settings | Further research to improve the quality and utility of synthetic data for fetal ultrasound image analysis |
| Automatic detection of complete and measurable cardiac cycles in antenatal pulsed-wave Doppler signals | The supervised classifier trained with the entire envelope and additional features achieved the highest accuracy (98% ± 1% with SVM) | Detection accuracy of complete and measurable cardiac cycles | Extend the dataset to include fetuses with congenital heart diseases, integrate the algorithm into ultrasound machines, and develop automatic measurement extraction from detected heartbeats |