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ULTRASOUND COMPUTATIONAL METHOD FOR PRENATAL SCREENING

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Value Proposition: Computational method that uses placental ultrasound images to detect prenatal and placental conditions early.

Technology Description

Researchers at Washington University in St. Louis have developed a computational method that predicts fetal conditions through the analysis of placental texture in prenatal ultrasound imagery. Fetal health relies on the subjective interpretation of ultrasound images, which typically exclude the placenta, and can vary in accuracy depending on the practitioner's skill and experience level. This variability poses a risk of misdiagnosis or the oversight of potential issues, which could lead to inadequate prenatal care.

By leveraging algorithms to perform texture analysis, including but not limited to filter-based, spectral, structural, and deep-learning methods, this invention provides a more objective and quantifiable assessment of fetal health. This approach can detect subtle variations in the ultrasound images of placentas that may indicate a range of fetal conditions, from common abnormalities to rare disorders, much earlier and with greater precision than conventional methods.

Stage of Research

Refining the texture analysis algorithms and validating the technology with clinical trials and real-world data.

Publications

Scott AK,…Oyen ML. Bioengineering approaches for patient-specific analysis of placenta structure and function. Placenta. 2025 Jun 13;166:154-163. doi: 10.1016/j.placenta.2024.08.005. Epub 2024 Aug 8. PMID: 39153938.

Applications

- Prenatal ultrasound imagery
- Detection of placental health and fetal conditions

Key Advantages

- Method prioritizes placental health, which is crucial for fetal development

- Offers a more objective and standardized assessment of placental health
- Utilizes a combination of filter-based, spectral, structural, and deep learning techniques to examine placental texture with high precision and objectivity
- Designed for easy incorporation into existing diagnostic workflows without requiring new hardware or retraining of medical staff
- Software-based framework allows for ongoing updates and scalability

Patents

Patent application filed

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