ALBERTA INNOVATES

Enabling Better Health through Artificial Intelligence (AI – Better Health)

Screening Congenital Heart Anomalies using Artificial Intelligence Detection

PROJECT FAST FACTS

RECIPIENT: University of Alberta, Luke Eckersley
PROJECT DURATION: 36 months
AWARD: $798,857
AWARD DATE: March 15, 2024

THE PROBLEM

Severe forms of congenital heart disease (CHD) can result in death or significant disability if not detected either before birth or soon after. Up to 40 per cent of cases of CHD in Alberta are missed during obstetric ultrasound screening. Obstetric sonographers and radiologists or obstetricians are tasked with detecting anomalies of all fetal organ systems, many of which are rare and difficult for physicians or sonographers to identify. Although efforts at improving sonographer education and developing standardized protocols for fetal heart screening are somewhat effective at improving detection rates, the problem of limited exposure to rare cardiac anomalies remains. Missed diagnoses have significant implications for pregnancy and delivery planning as well as the health and wellbeing of the newborn. Moreover, unnecessary referrals for specialized care stress the health system and overburden families.

THE SOLUTION

Recent data shows that fetal detection of CHD using artificial intelligence (AI) can be as accurate as specialized obstetric screening. This project aims to evaluate the efficacy of using an artificial intelligence (AI) tool to detect fetal heart disease during routine prenatal ultrasounds. Performance will be compared against standard methods using post-birth diagnosis as a benchmark. Additionally, a localized version of the AI tool will be tailored to the needs of Albertans. This project not only enhances diagnostic capabilities but also advances Alberta's healthcare system's adaptability and learning.

PROJECT OBJECTIVES

This team is working to achieve the following goals:

- **Improved Congenital Heart Disease Detection: Make prenatal screening for fetal heart defects more accurate using AI to improve outcomes for babies with heart problems.**
- **Integration of AI: Incorporate AI into routine clinical practice by developing methods to automate image processing and algorithm execution.**
- **Tailored AI Solutions: Create an AI tool specifically designed for the Alberta healthcare system.**

UNIVERSITY OF ALBERTA

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ABOUT THE ENABLING BETTER HEALTH THROUGH ARTIFICIAL INTELLIGENCE (AI-BETTER HEALTH) PROGRAM

AI-Better Health bridges the gap between the promise and the reality of better health for Albertans. If you'd like to learn more, please check out the Alberta Innovates website.

Learn how

albertainnovates.ca