

Practice 2: A Study of Deep Learning for Measurement of The Fetal Head Circumference

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Abstract—Accurate measurement of fetal head circumference (HC) from ultrasound images is essential for monitoring fetal growth and estimating gestational age during pregnancy. Manual measurement by sonographers is time-consuming and subject to inter-observer variability. This study presents a deep learning-based approach for automated HC measurement using 2D ultrasound images from the HC18 Grand Challenge dataset. Semantic segmentation is used to delineate the fetal head boundary, followed by an ellipse fitting algorithm to compute the circumference. The methodology demonstrates the potential of deep learning techniques to assist clinicians in obtaining accurate and consistent fetal biometric measurements.

I. INTRODUCTION

II. DATASET

III. METHODOLOGY

A. *Semantic Segmentation*

- 1) *Model Architecture:*
- 2) *Training Strategy:*

B. *Measurement of Fetal Head Circumference*

- 1) *Algorithm:*

IV. RESULT

V. DISCUSSION

VI. CONCLUSION