Predicting the mode of delivery in pregnant women at the first trimester using deep learning techniques

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Abstract

Every day 810 women died in 2017 due to preventable issues relating to childbirth and pregnancy, according to WHO. Though the number has been decreasing since 2000, yet the deaths of women that still occur due to childbirth can be widely associated with cesarean section (CS). Studies have shown that women undergoing CS have a higher risk of post-partum cardiac arrest, hysterectomy, wound hematoma, venous thromboembolism, anesthetic complication, major puerperal infection, etc., when compared to women with Vaginal birth. The emergency CS is even worse than a planned CS. In order to further reduce the maternal mortality rate and to decrease CS, this study aims in the application of deep learning techniques to predict the mode of childbirth as early as possible, so that early measures can be taken in order to convert it into a vaginal birth. Some of the parameters that were used to train the model are the age, smoking or drinking habits, gestational diabetes, parity, gravidity, etc., This supervised machine learning model that predicts whether a woman would have a vaginal or a cesarean section would help reduce the maternal mortality rate due to cesarean section. By predicting CS early and paving the way for the obstetrician to convert it into a vaginal birth, this model also aims at reducing the physical, psychological, and economical distress caused due to cesarean section.

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Biostatistics and Epidemiology at SRM Institute of Science and Technology, Chennai, India. She is working on several projects that involve the application of Deep Learning to Public Health including Breast cancer diagnosis using chest CT and Pneumonia Diagnosis using chest X-rays. She is thriving to integrate Deep Learning and Public Health mainly in the field of early diagnosis of highly-prevalent diseases.

Speaker Publications:

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Biography:

Arthi R has completed her Bachelor's degree at Sri Venkateswara College of Engineering, Chennai, India, and has worked at AstraZeneca Pharmaceuticals Pvt. Ltd. as an Associate Engineer. She is currently pursuing her Masters in