Supplementary Figures and Acknowledgements: Machine Learning for Accurate Estimation of Fetal Gestational Age Based on Ultrasound Images
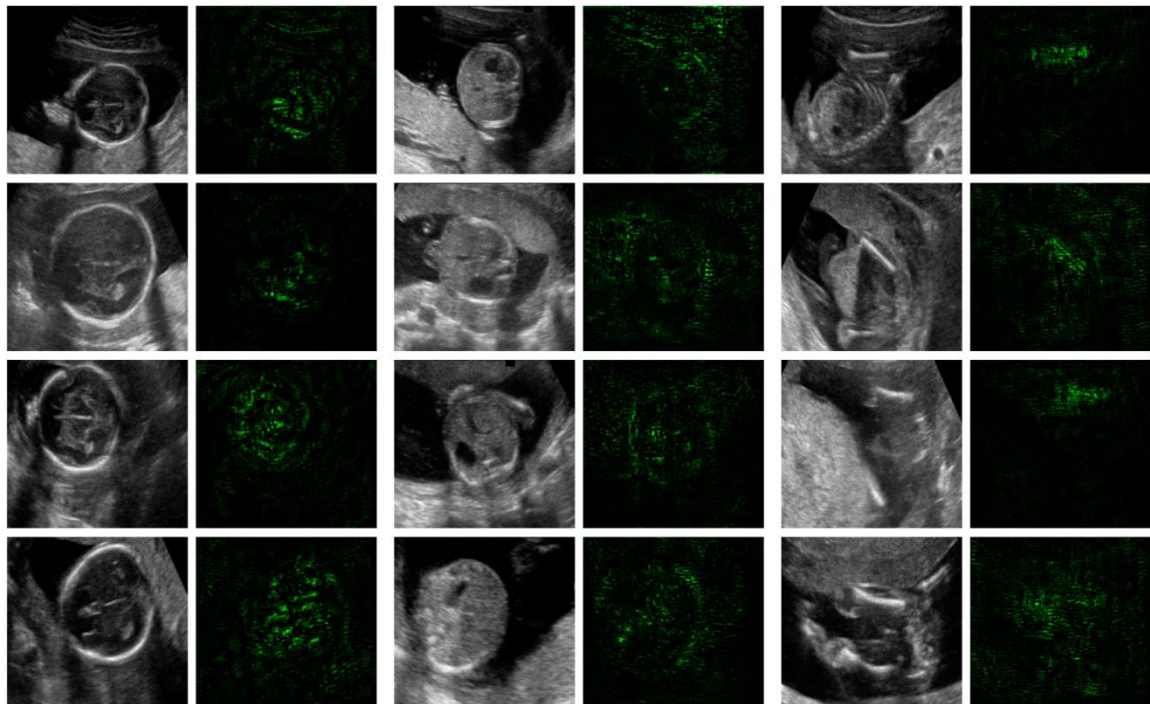
Lok Hin Lee[1]*, Elizabeth Bradburn[2]*, Rachel Craik[2], Mohammad Yaqub[3], Shane A Norris[4], Leila Cheikh Ismail[5], Eric O Ohuma[2,6], Fernando C Barros[7,8], Ann Lambert[2], Maria Carvalho[9], Yasmin A Jaffer[10], Michael Gravett[11], Manorama Purwar[12], Qingqing Wu[13], Enrico Bertino[14], Shama Munim[15], Aung Myat Min[16], Zulfiqar Bhutta[15,17], Jose Villar[2,18], Stephen H Kennedy[2,18], J Alison Noble[1] ** and Aris T Papageorghiou[2,18]**

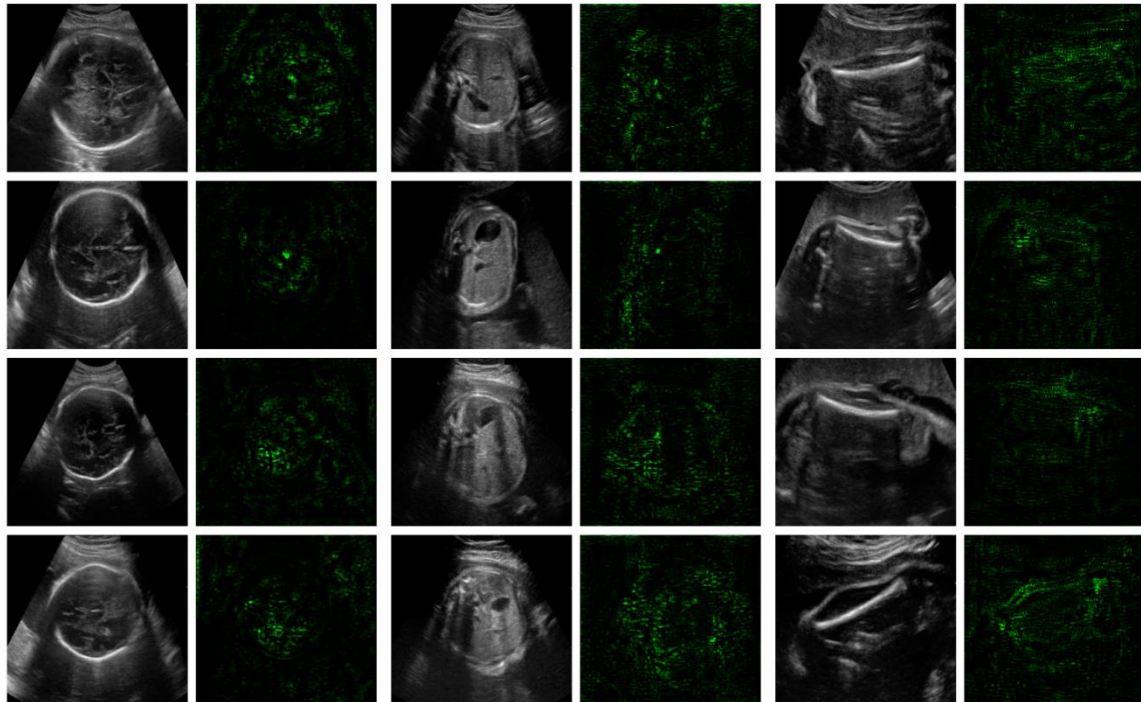*Joint first authors ** Joint senior authors

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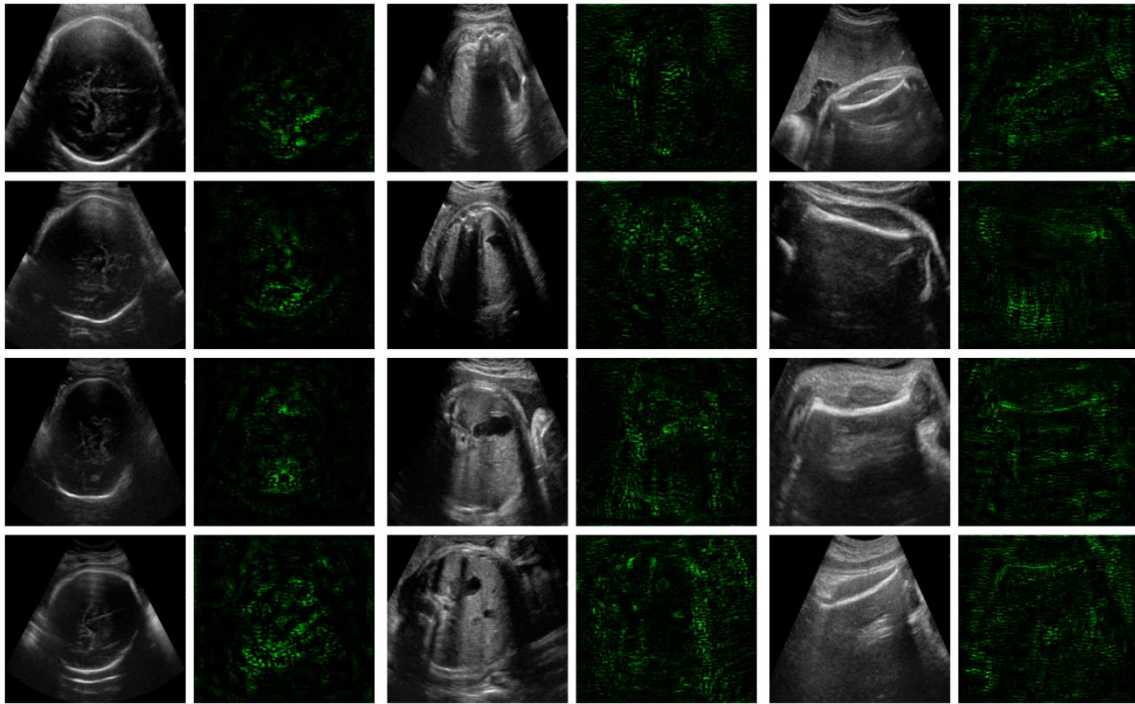**Supplementary Figure 1: Saliency maps for fetuses <23^{+0} weeks**

Saliency maps for fetuses where gestational age was less than 23^{+0} weeks. The head circumference, abdominal circumference and femur length planes are shown in columns 1, 2 and 3 respectively. The corresponding saliency map is shown adjacent to the fetal plane image to which it relates. The green indicates the degree of attribution to each individual pixel used for the model's assessment of gestational age. Saliency maps were generated using Integrated Gradients[1]. The images are taken from a random sample of all included fetuses.

Supplementary Figure 2: Saliency maps for fetuses ≥23^{+0} weeks and ≤30^{+6} weeks

Saliency maps for fetuses where gestational age was between 23^{+0} - 30^{+6} weeks. The head circumference, abdominal circumference and femur length planes are shown in columns 1, 2 and 3 respectively. The corresponding saliency map is shown adjacent to the fetal plane image to which it relates. The green indicates the degree of attribution to each individual pixel used for the model's assessment of gestational age. Saliency maps were generated using Integrated Gradients[1]. The images are taken from a random sample of all included fetuses.

Supplementary Figure 3: Saliency maps for fetuses ≥31^{+0} weeks

Saliency maps for fetuses where gestational age was more than 31^{+0} weeks. The head circumference, abdominal circumference and femur length planes are shown in columns 1, 2 and 3 respectively. The corresponding saliency map is shown adjacent to the fetal plane image to which it relates. The green indicates the degree of attribution to each individual pixel used for the model's assessment of gestational age. Saliency maps were generated using Integrated Gradients[1]. The images are taken from a random sample of all included fetuses.

[1]Sundararajan, M., Taly, A., Yan, Q. Axiomatic attribution for deep networks. International conference on machine learning (2017).

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