

Finding a fETus with UltraSound (FETUS)

King's Health Partners Summer School

King's Health Partners Summer School **#2021**

6th July 2021

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Get source of this slides and see further references from <https://github.com/ofetus/us-simulator>



Contents

Who are we?

Guessing Fetal Growth

Looking inside the human body

Simulating Ultrasound-Guidance Interventions

Takeaway messages / Surprises / Evaluation

Who are we? / Where we come from? / Do we have hobbies?

Zhanchong
Ou



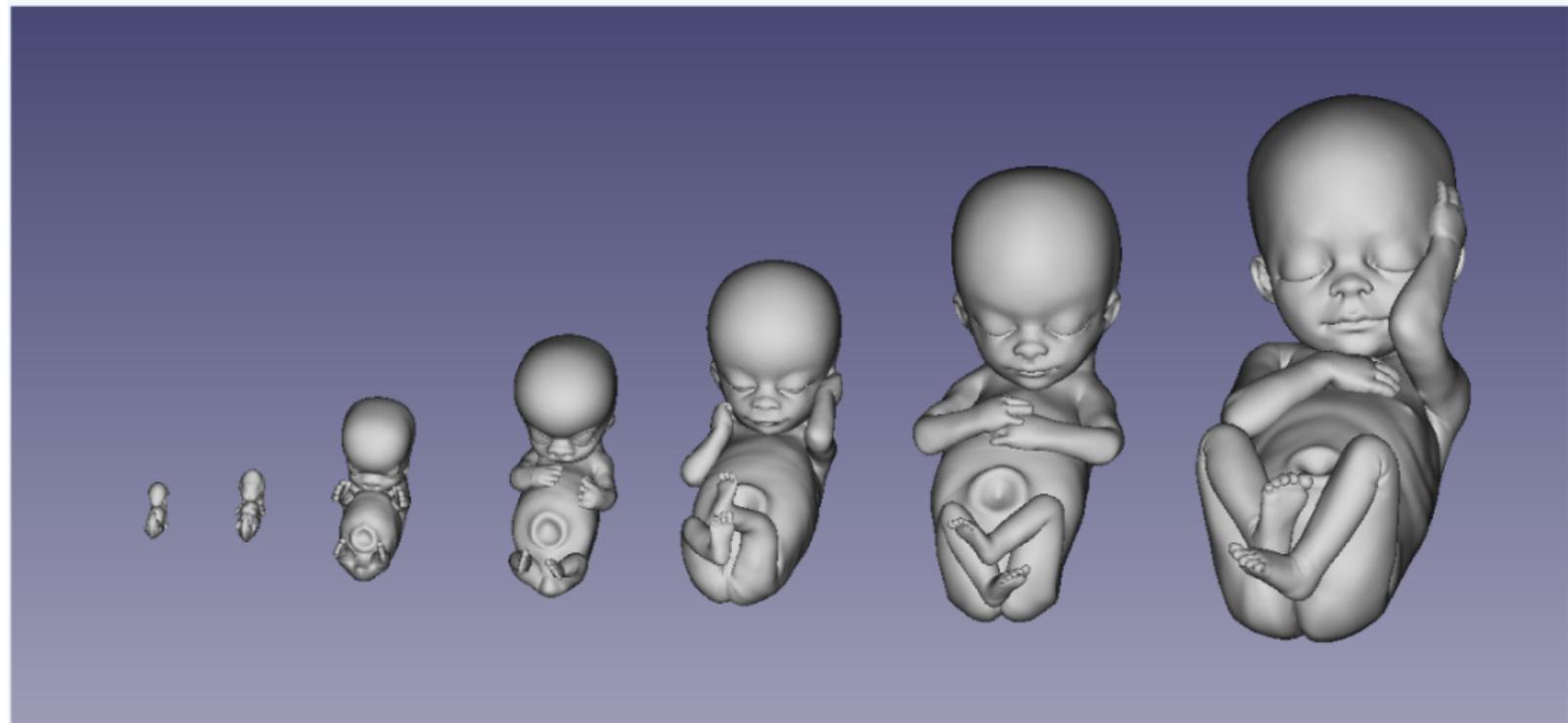
Shu
Wang



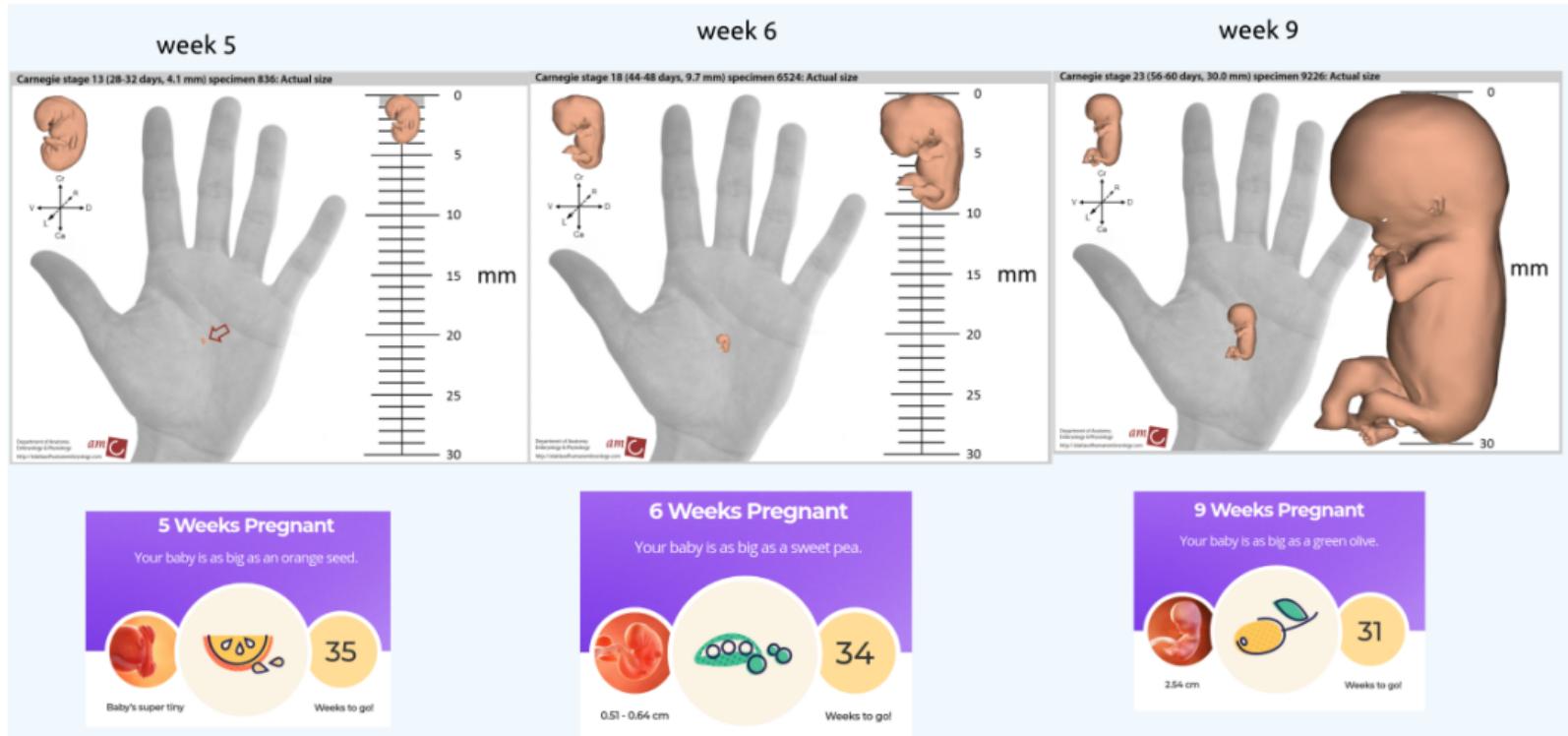
Miguel
Xochicale



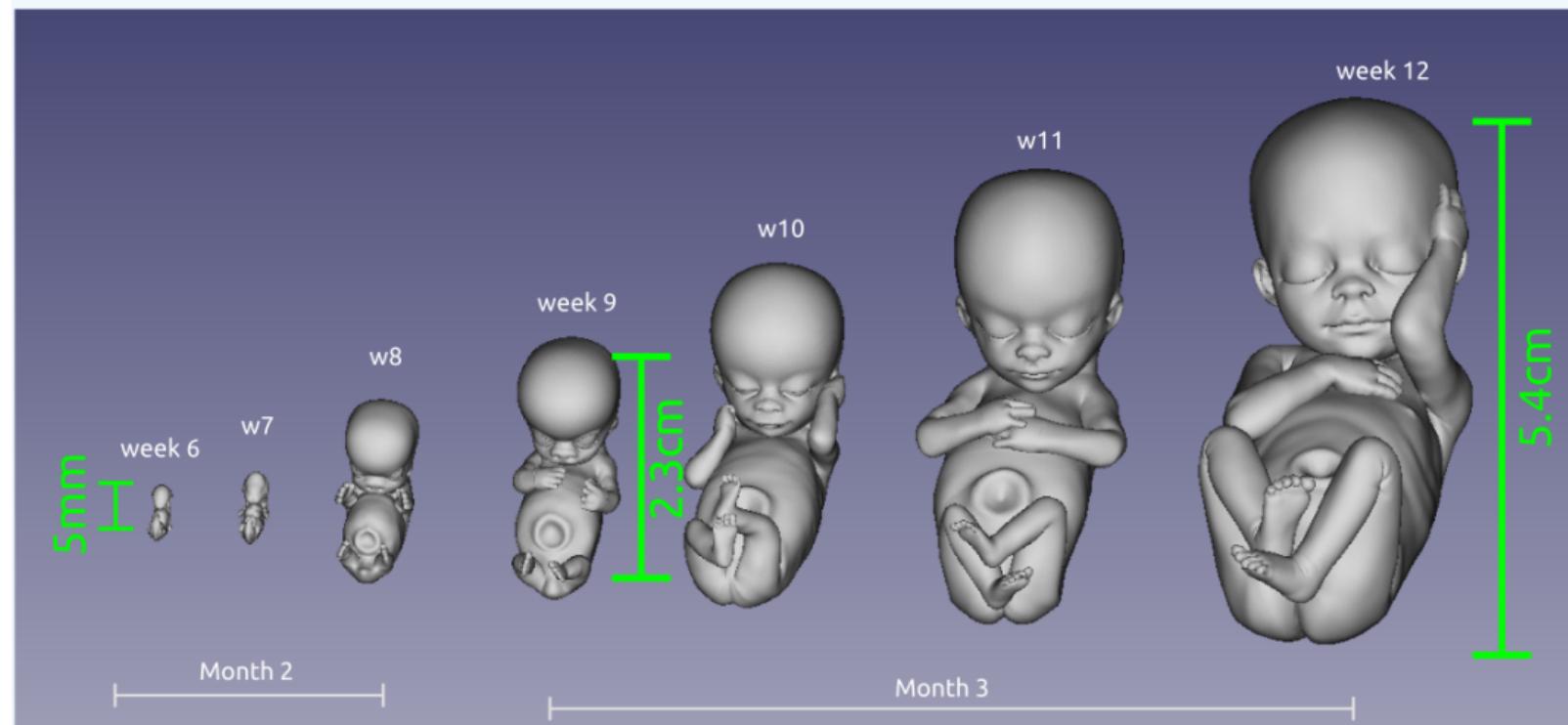
Can you guess the *AGE* of these fetus?



Can you guess the *SIZE* of these fetus?



Fetal Growth



Medical Imaging in Pregnancy

CT

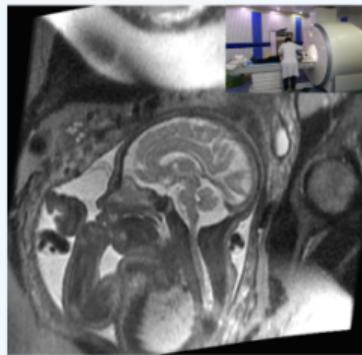


+ high image quality



- non-real-time

MRI



+ high image quality



- non-real-time

US



+real-time



- poor-image quality

Ultrasound



Modelling US imaging

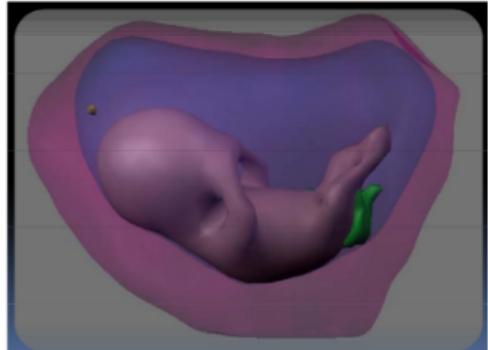
Segmentation on 3D US data



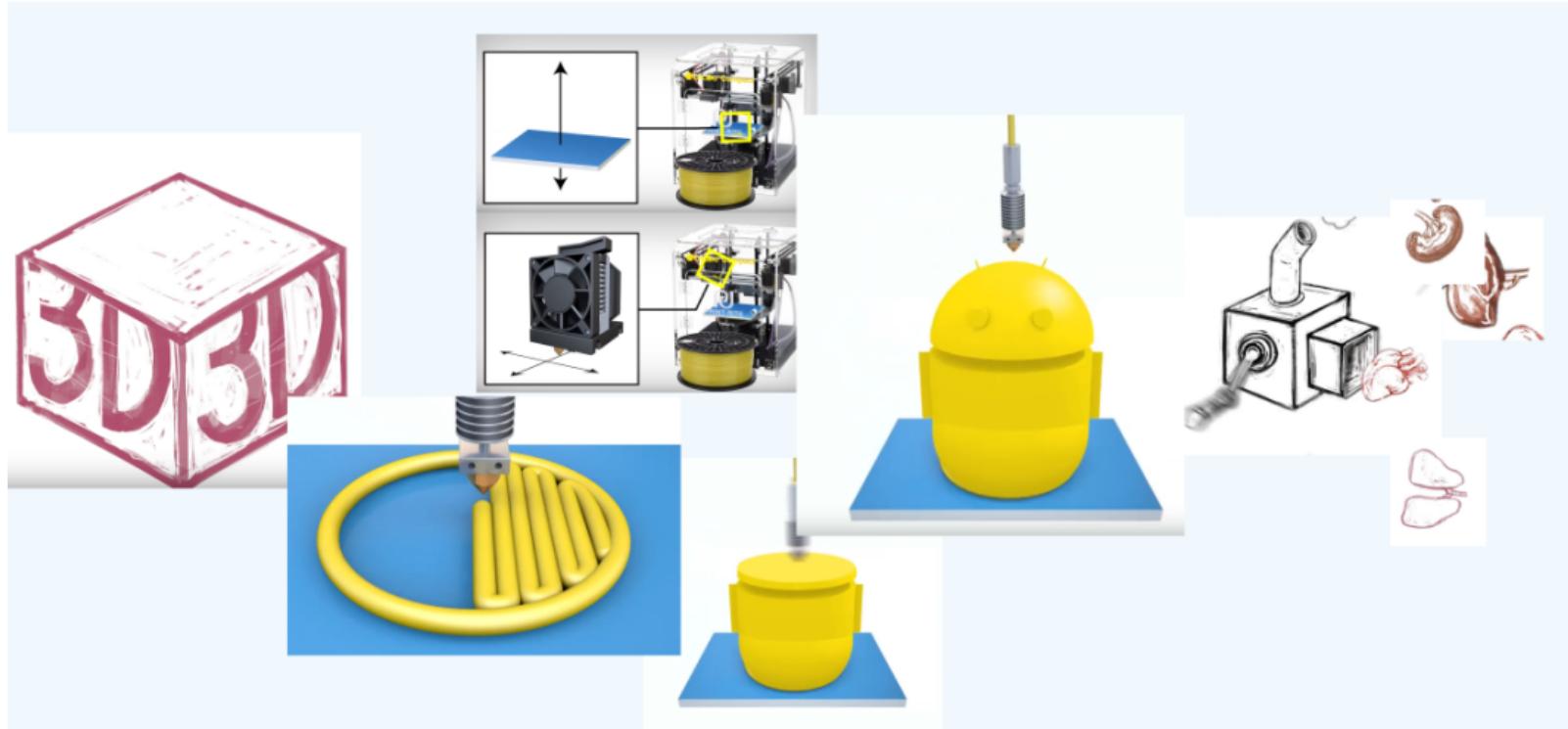
Tissue Labelling



Surface Reconstruction



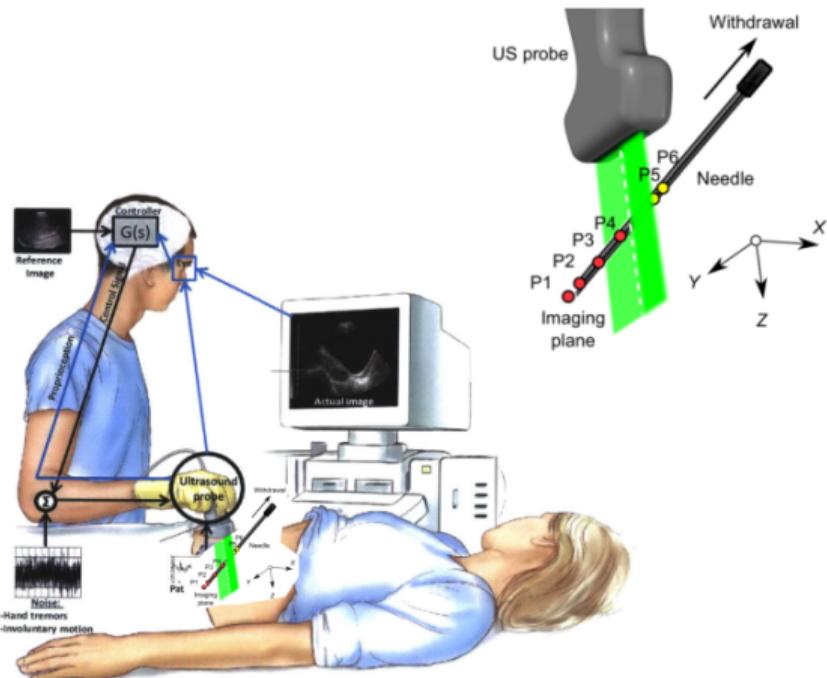
How to do and Why to do 3D printing?



3D printing Fetus



The sonographer-probe-patient control system



Challenges:

- Tracking needles
- Skillfullness of sonographers
- Anatomical view changes

Simulator for Ultrasound-Guidance Interventions

Training in-plane/out-plane needle tracking



Takeaway messages / Surprises / Evaluation

Takeaways

- Fetal development
- Ultrasound imaging
- 3D printing
- US needle tracking

Souvenirs



Evaluation



Acknowledgements



Miguel
Xochicale



Shu
Wang



Ou
Zhanchong



Fang-Yu Lin

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Anna
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Tom
Vercauteren



Wenfeng
Xia

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