

# Finding a fETus with UltraSound (FETUS)

King's Health Partners Summer School

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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>.



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Who are we?

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

**Zhanchong  
Ou**



**Shu  
Wang**



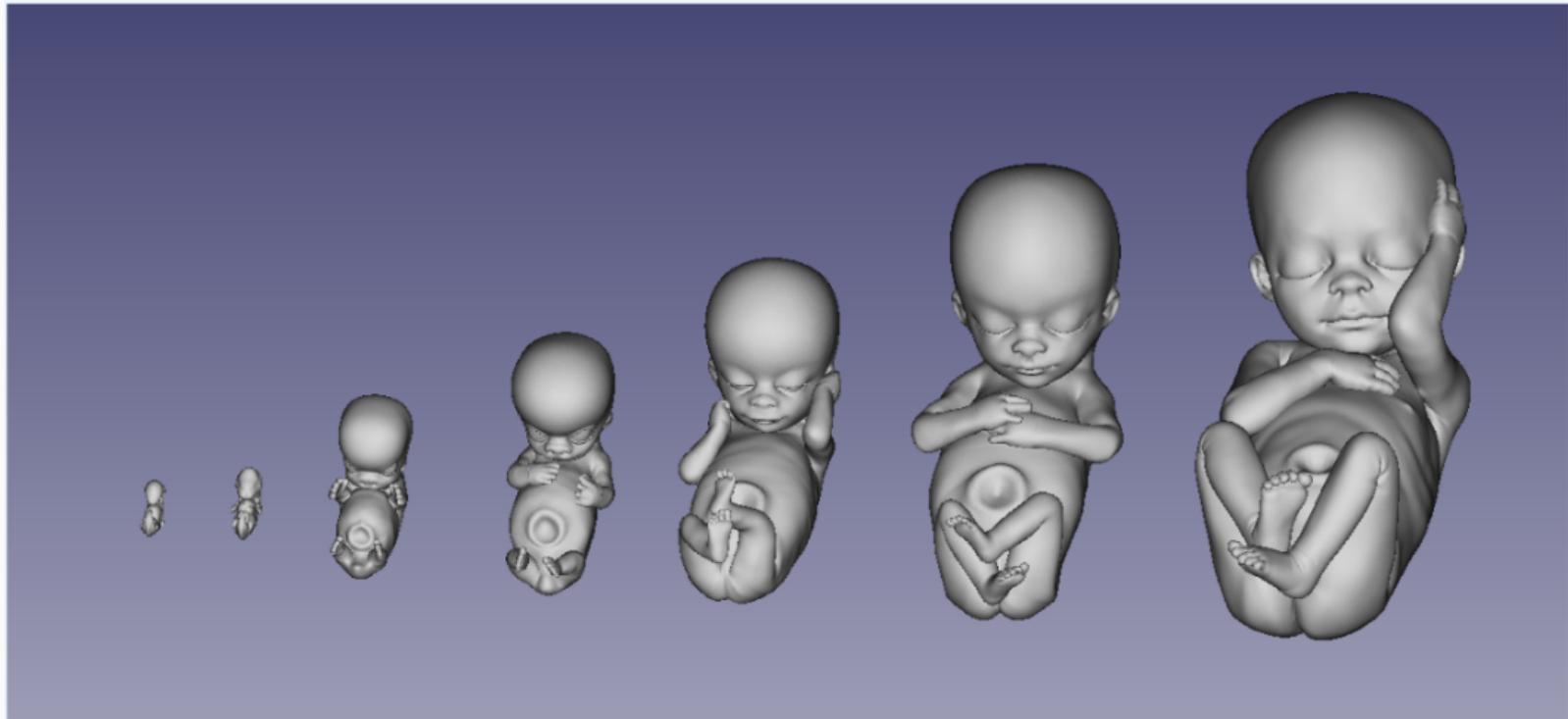
**Miguel  
Xochicale**



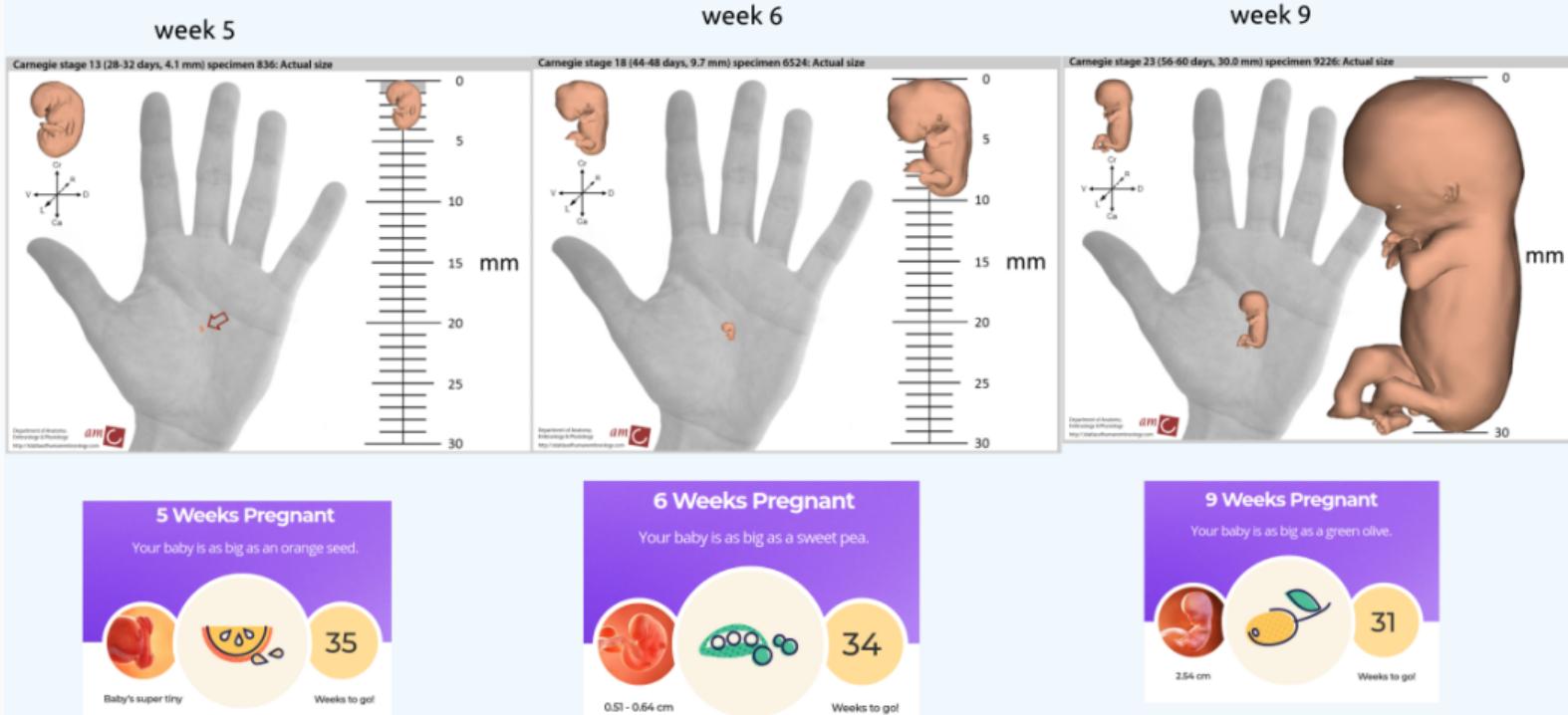
## Guessing Fetal Growth

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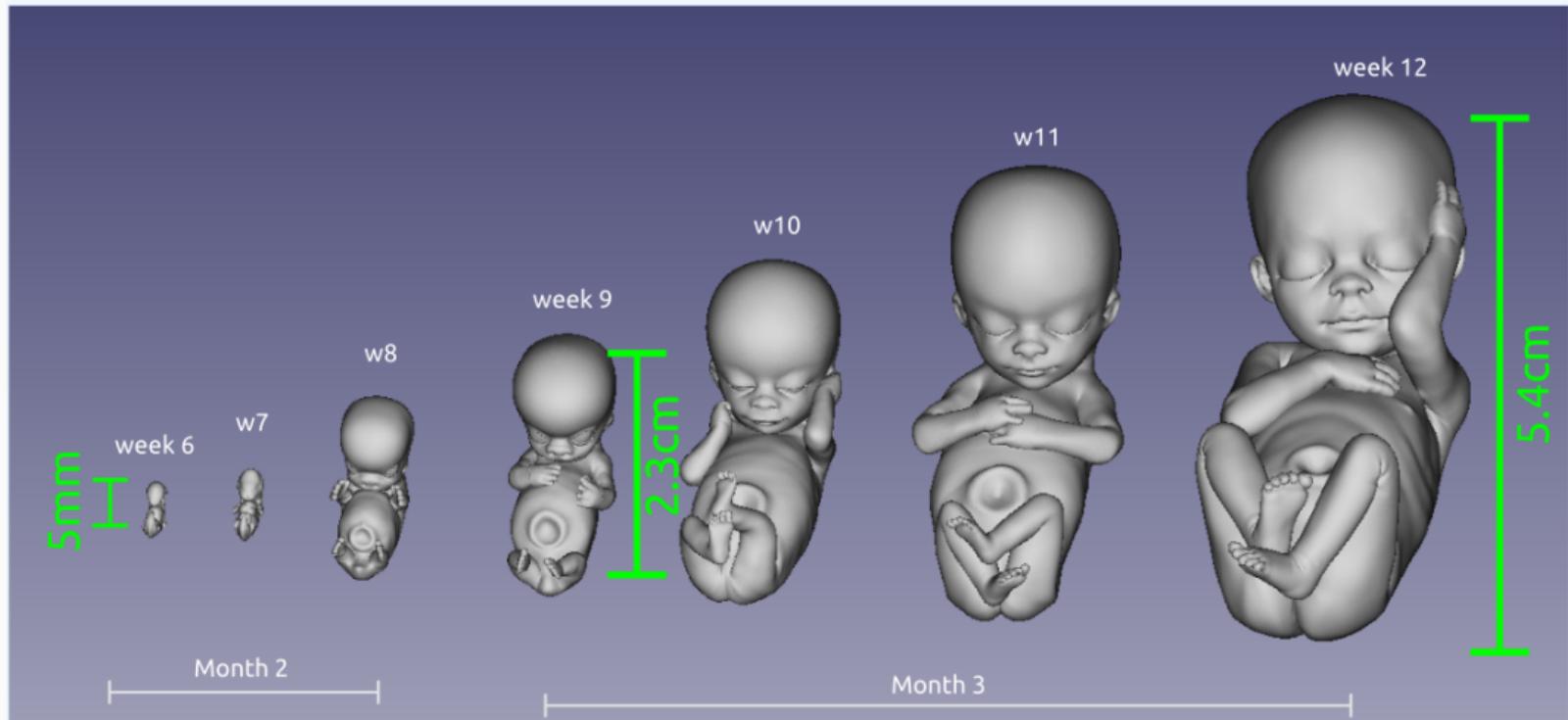
Can you guess the \*AGE\* of these fetus?



# Can you guess the \*SIZE\* of these fetus?



# Fetal Growth



(Growing Baby: 3D Print-ready Models)

Looking inside the human body

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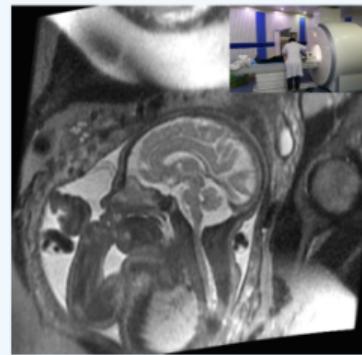
# Medical Imaging in Pregnancy

## CT



+ high image quality - non-real-time

## MRI



+ high image quality - non-real-time

## US

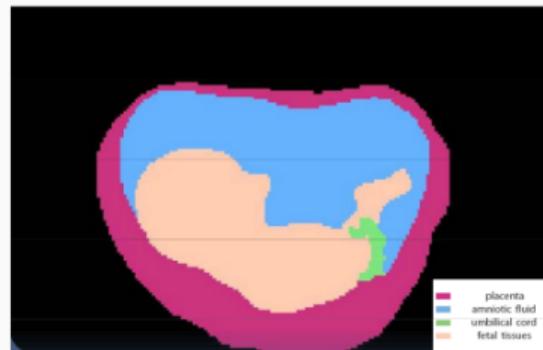


+ real-time - poor-image quality

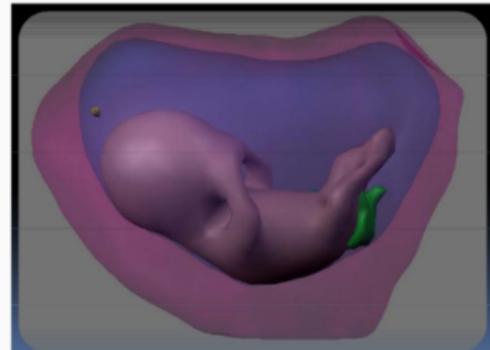
## Segmentation on 3D US data



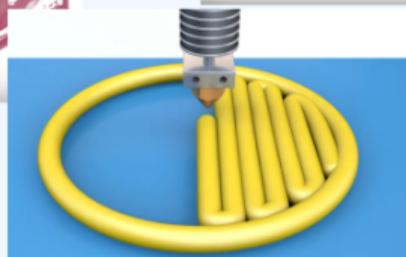
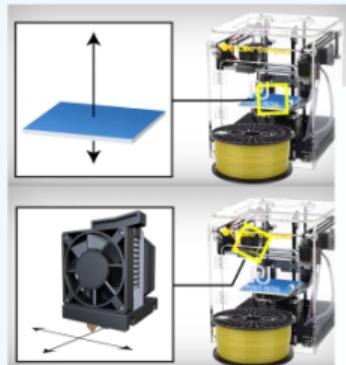
## Tissue Labelling



## Surface Reconstruction



# How to do and Why to do 3D printing?



# 3D printing Fetus

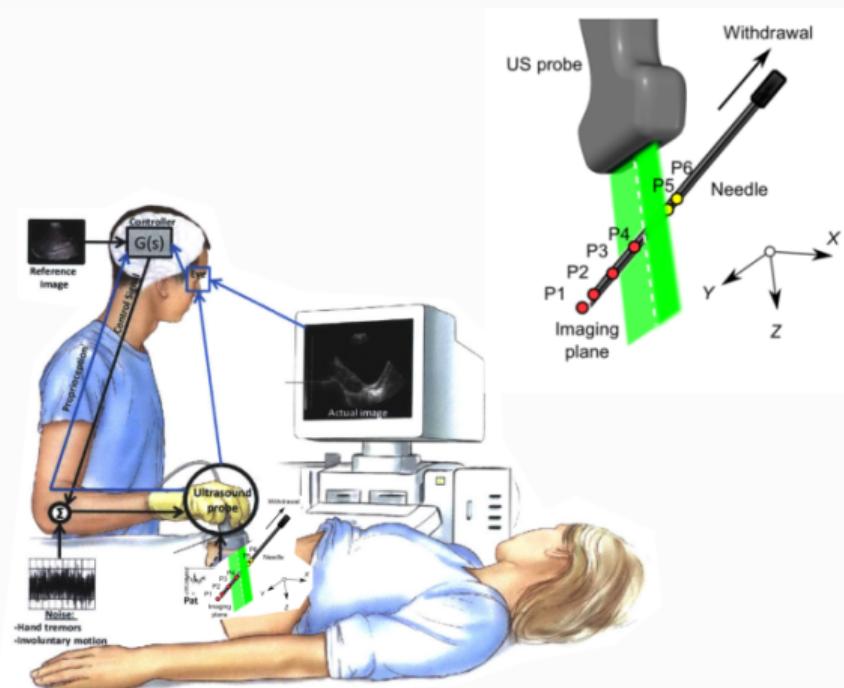


(Add references)

# Simulating Ultrasound-Guidance Interventions

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# 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

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## Takeaways

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

## Souvenirs



## Evaluation



## Acknowledgements

# GIFT UNT team Surg



Miguel  
Xochicale



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Anna  
David



Tom  
Vercauteren



Wenfeng  
Xia

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