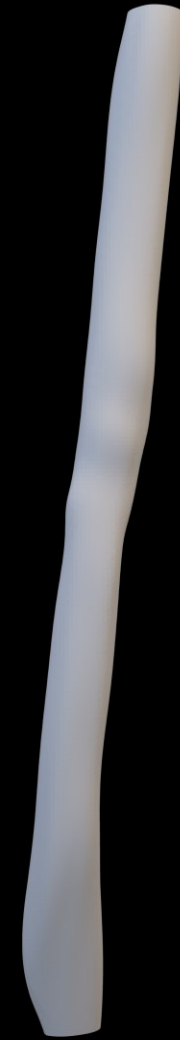


A person in a white lab coat is shown from the back, interacting with a digital interface. The interface consists of a grid of hexagonal icons, each containing a different symbol: a person, a heart with a pulse line, an atom, a microscope, a DNA helix, and a globe. The person's hands are raised, touching the icons. The background is a dark blue gradient with a faint world map outline.

**THE** | SHAPING A  
**TECHMED** | HEALTHY  
**EVENT** | FUTURE

14:45 – 16:00 | TechMed Talent Talks | Dieuwertje Alblas

# AI-based modeling of Abdominal Aortic Aneurysm Progression

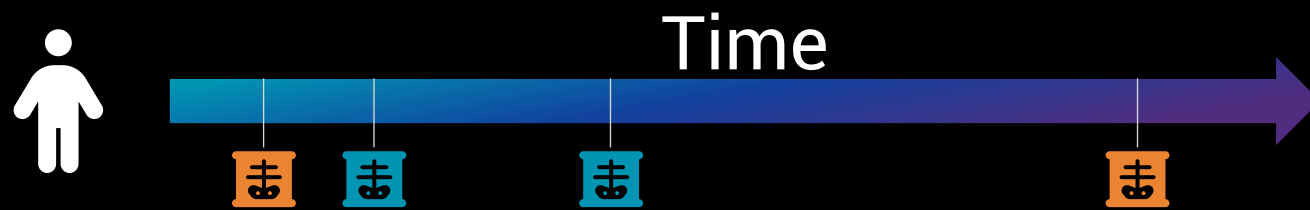


Dieuwertje Alblas

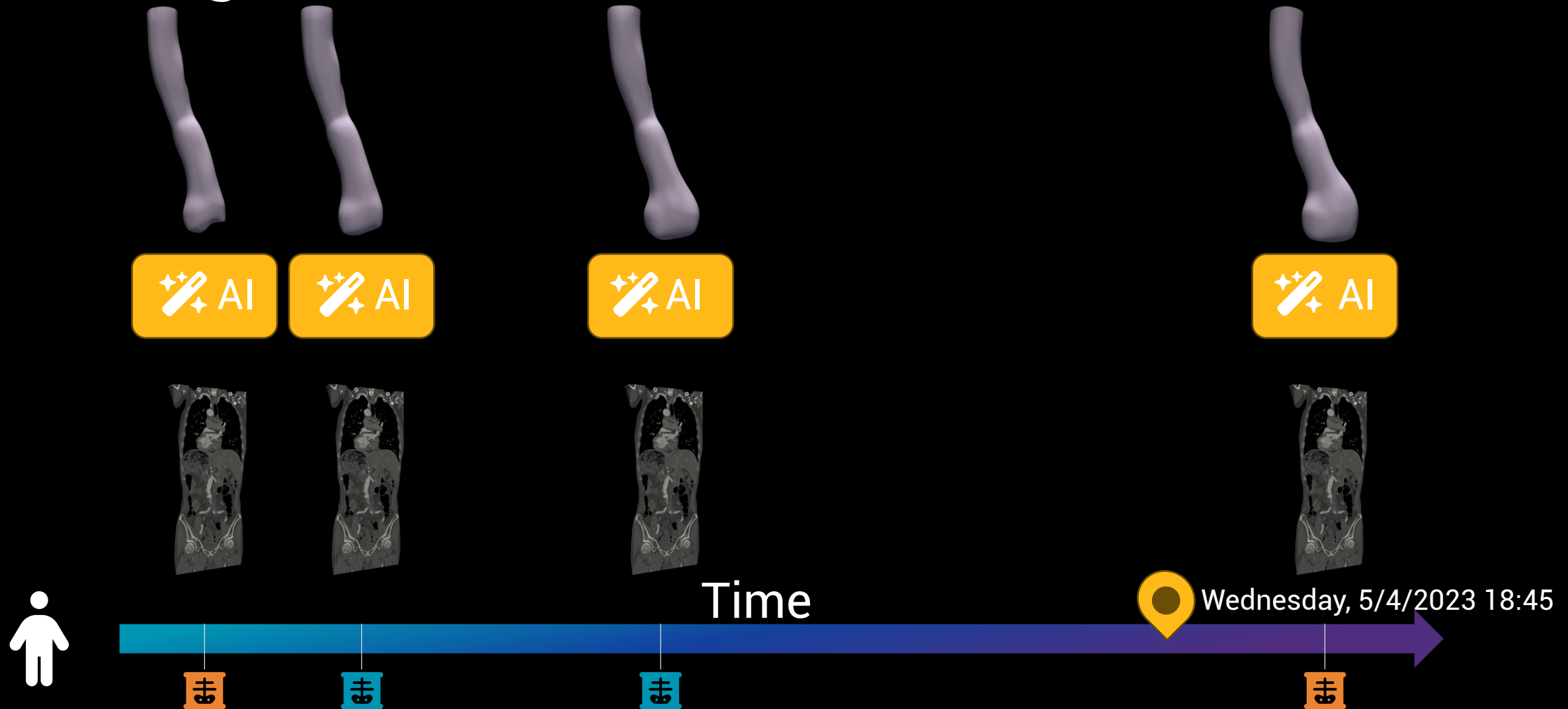
PhD Candidate

Mathematics of Imaging & AI • Technical Medical Center

# Abdominal Aortic Aneurysms



# AAA Segmentation

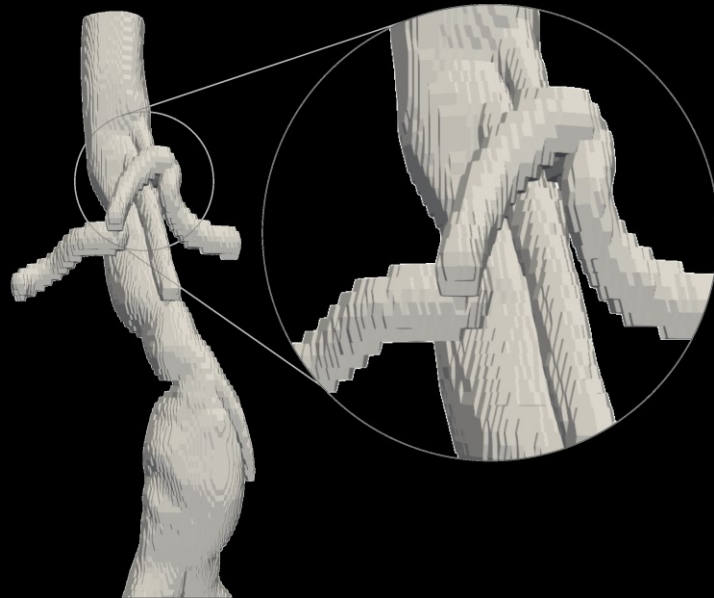


# Discretization

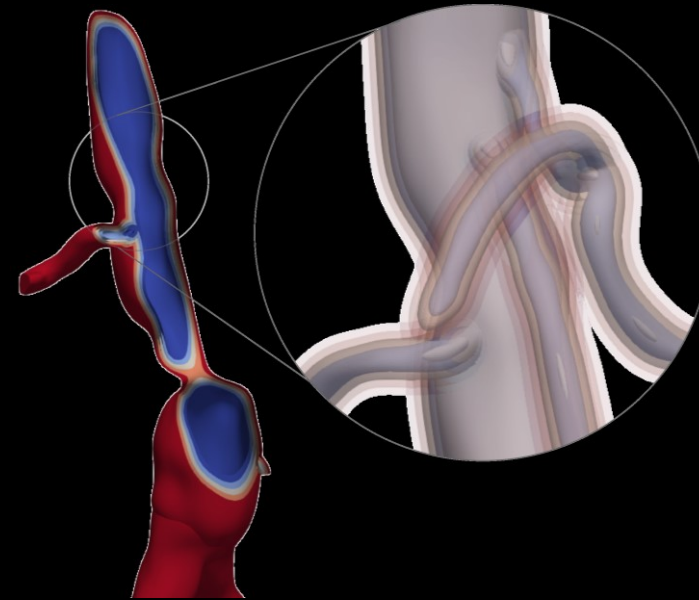


# Representing vascular models

👍 Continuous in space and time

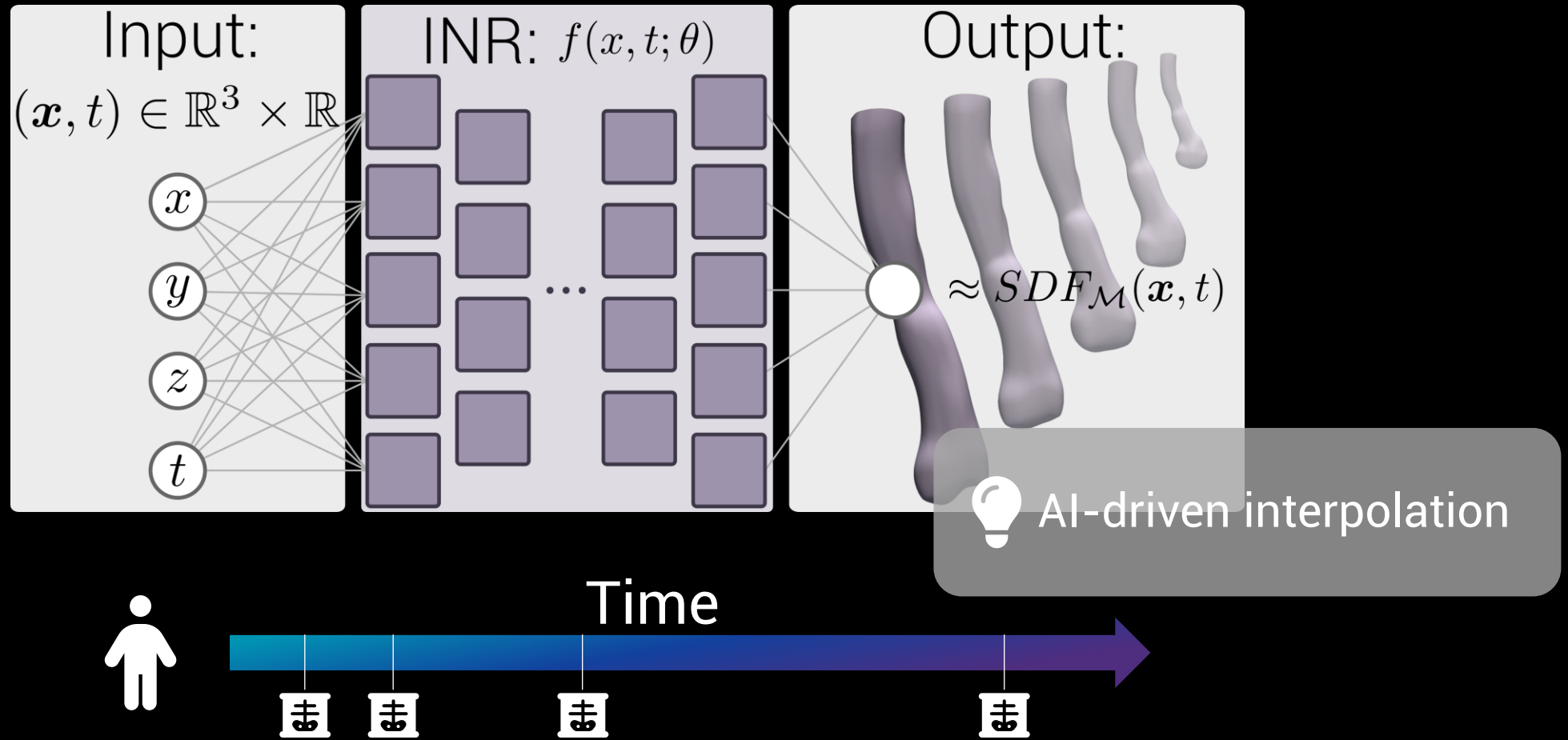


Voxelmask



Signed distance function

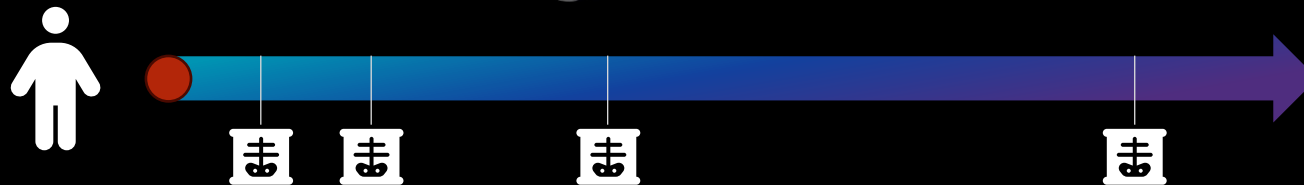
# Finding an implicit representation...



# Continuous AAA model



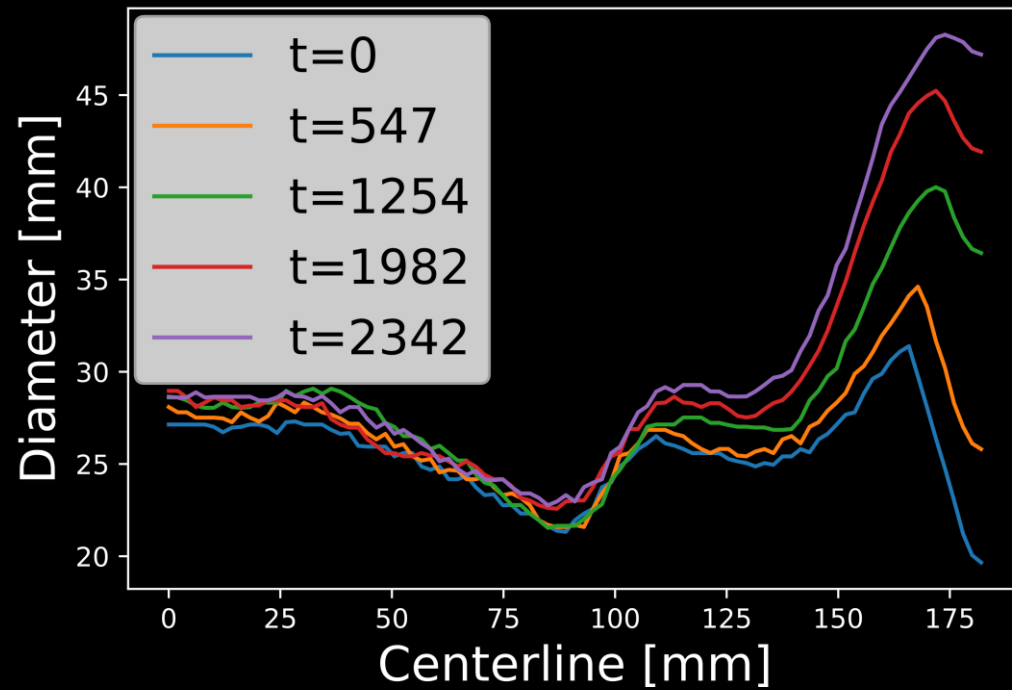
Marieke Hofman



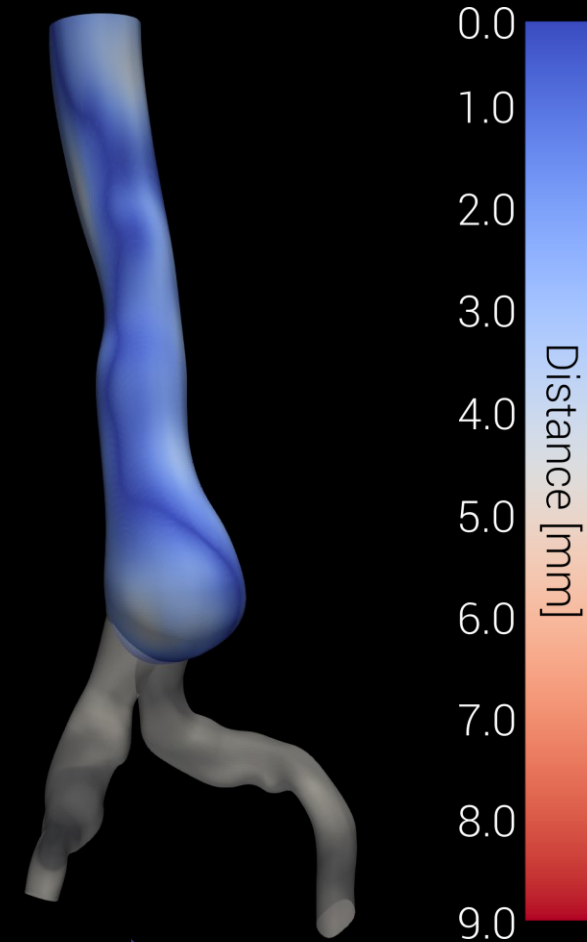
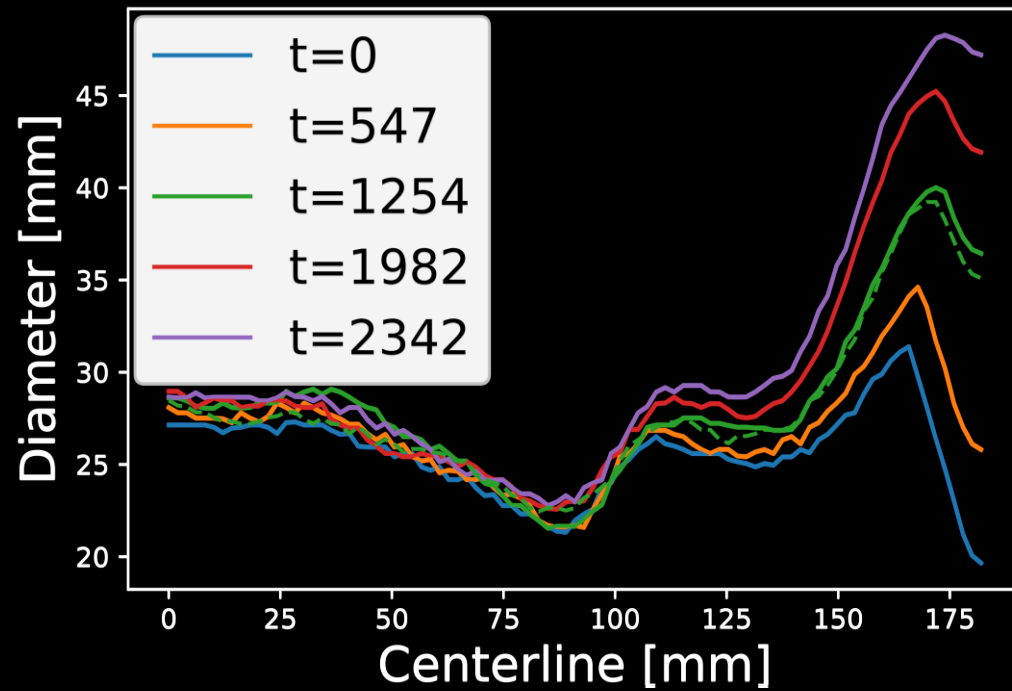
Alblas, Hofman, Brune, Yeung, Wolterink, 2023, *Functional Imaging and Modeling of the Heart*, 13958, p. 356-366



# Performance • Interpolation



# Performance • Interpolation



# Conclusion & Outlook

- Interpolation
- Prediction
- Improve monitoring

💡 *Not limited to AAAs*

💡 *Not limited to CT*



Do you have longitudinal data?

*Let's get in touch!*

✉ d.alblas@utwente.nl

✕ @Dieuwertje\_1