



# 3D printed organ models with integrated sensing capabilities

A method to 3D print patient-specific organ models with tissue-mimicking properties and integrated sensing capabilities.

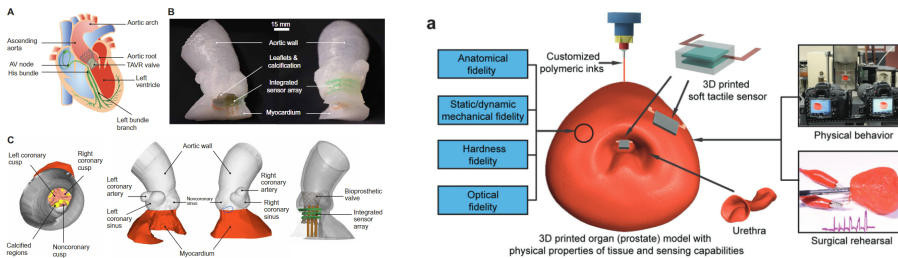
Technology ID

20180012

## Category

Engineering & Physical Sciences/Instrumentation, Sensors & Controls  
Engineering & Physical Sciences/Materials  
Engineering & Physical Sciences/Robotics  
Life Sciences/Medical Devices

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IP Status: US Patent Issued; Patent No. 11,741,854

## Applications

- Advanced surgical rehearsal and preoperative planning
- Organ behavior prediction

## Technology Overview

Current 3D printed organ models are built using hard plastic and lack mimicry of the physical properties of real tissue. Important differences between tactile sensation and mechanical properties between hard plastic and tissue limit their application in preoperative planning and surgical rehearsal. Researchers at the University of Minnesota have developed a method to 3D print patient-specific organ models using soft silicone with realistic tissue-mimicking properties. These 3D printed models can also be equipped with integrated 3D printed sensors that collect quantitative feedback.

## Phase of Development

TRL: 4-5

Working prototype. Prostate and aortic models have been successfully printed.

## Desired Partnerships

This technology is now available for:

- License
- Sponsored research
- Co-development

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## Researchers

- [Michael McAlpine](#) Kuhrmeyer Family Chair Professor, Department of Mechanical Engineering



## References

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