МИНИСТЕРСТВО НАУКИ И ВЫСШЕГО ОБРАЗОВАНИЯ РОССИЙСКОЙ ФЕДЕРАЦИИ
ЮЖНЫЙ ФЕДЕРАЛЬНЫЙ УНИВЕРСИТЕТ
ИНСТИТУТ РАДИОТЕХНИЧЕСКИХ СИСТЕМ И УПРАВЛЕНИЯ

Кафедра инженерной графики и компьютерного дизайна

Iftikhar B. Abbasov

ARTIFICIAL INTELLIGENCE IN MEDICAL IMAGING

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- **Introduction, cardiovascular imaging techniques**
- **artificial intelligence in cardiovascular imaging**
- **3D printing of heart models**
- **virtual reality in the study of the cardiovascular system**
- **analysis of the researches**
- **conclusion**

ARTIFICIAL INTELLIGENCE IN CARDIOVASCULAR IMAGING

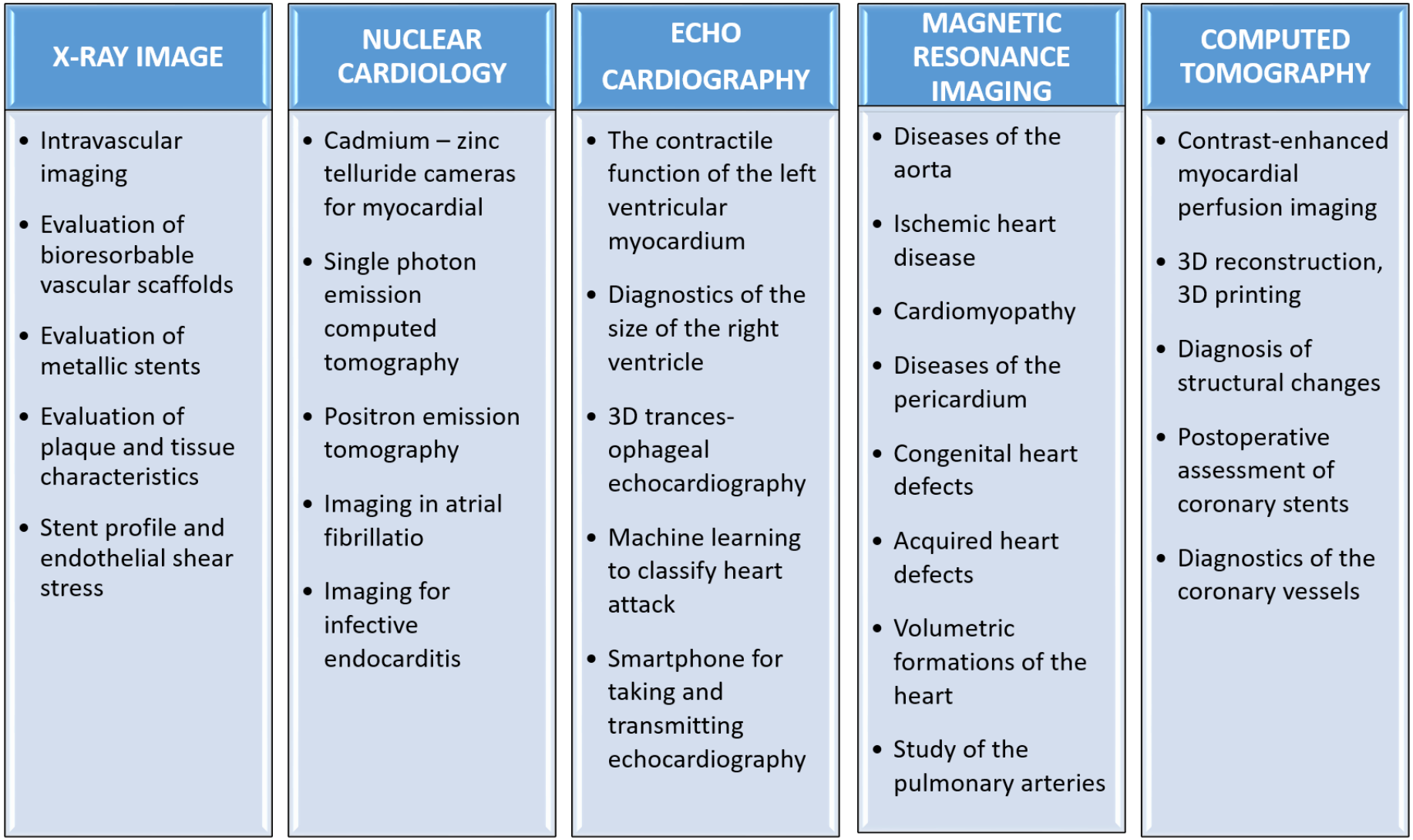

Figure 1. Topics of current articles according to The International Journal of Cardiovascular Imaging

ARTIFICIAL INTELLIGENCE IN CARDIOVASCULAR IMAGING

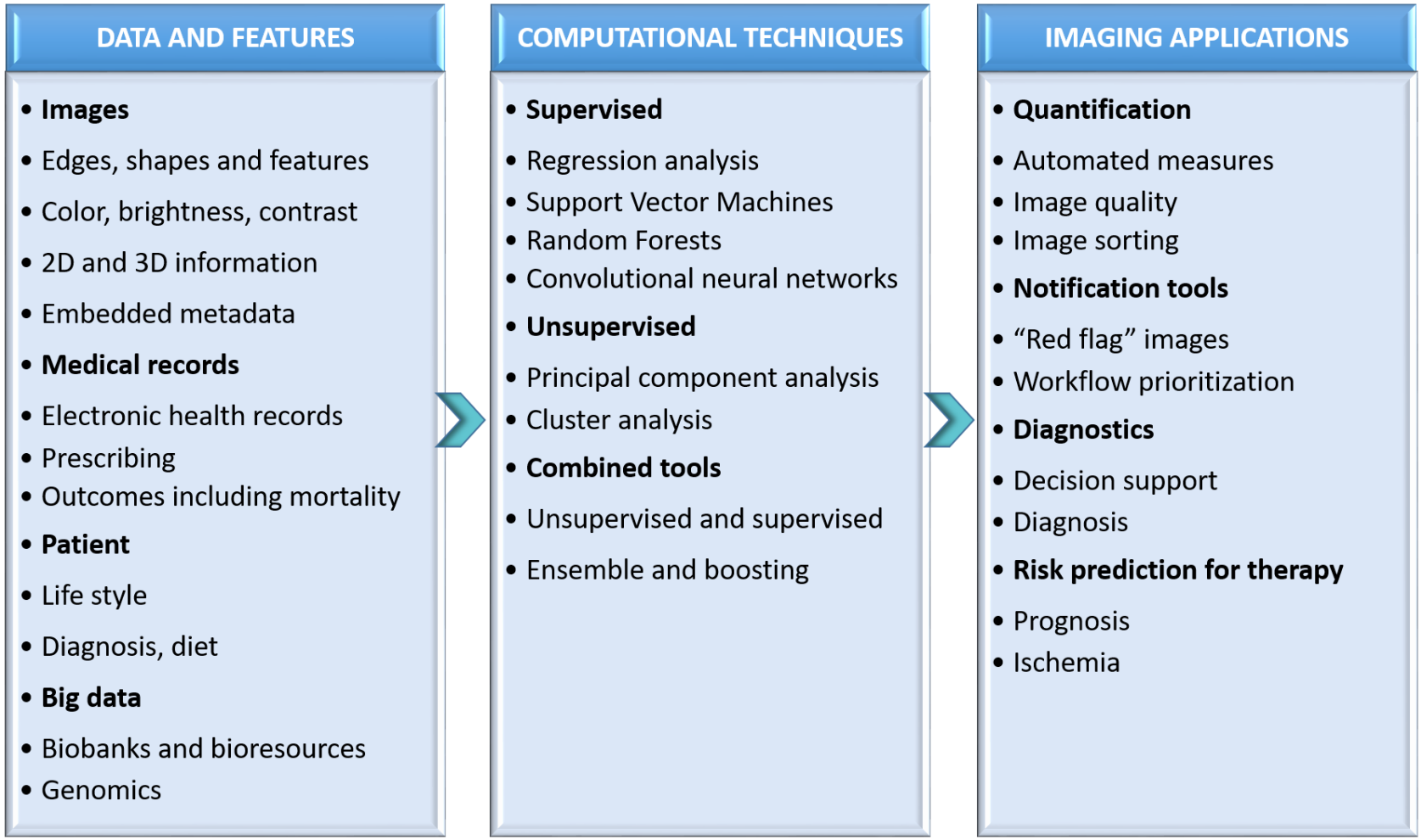

Figure 2. Stages of using artificial intelligence in cardiovascular imaging

DEEP LEARNING STAGES IN RADIOLOGY

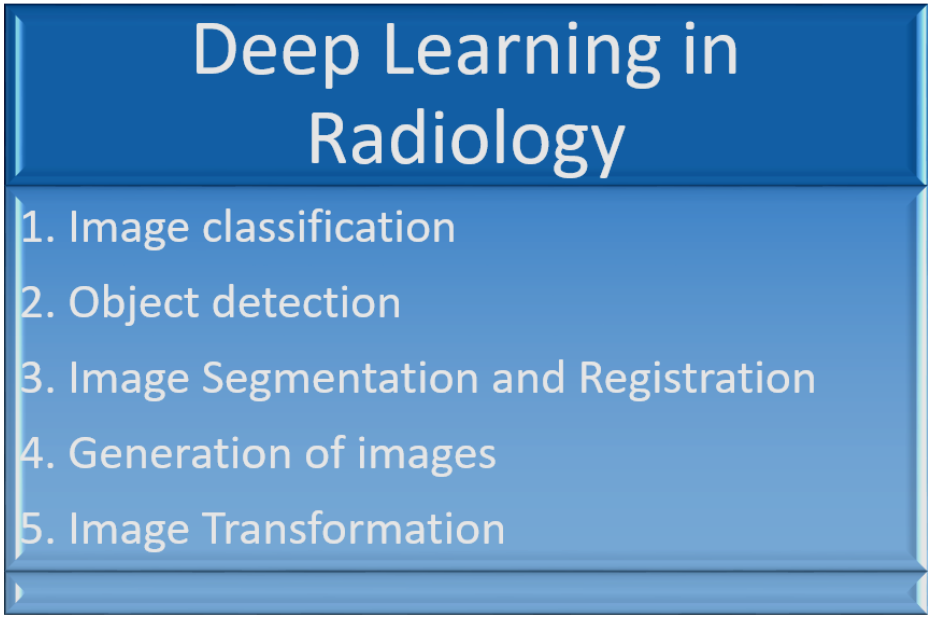

Figure 3. Deep Learning Stages in Radiology

3D PRINTING OF HEART MODELS

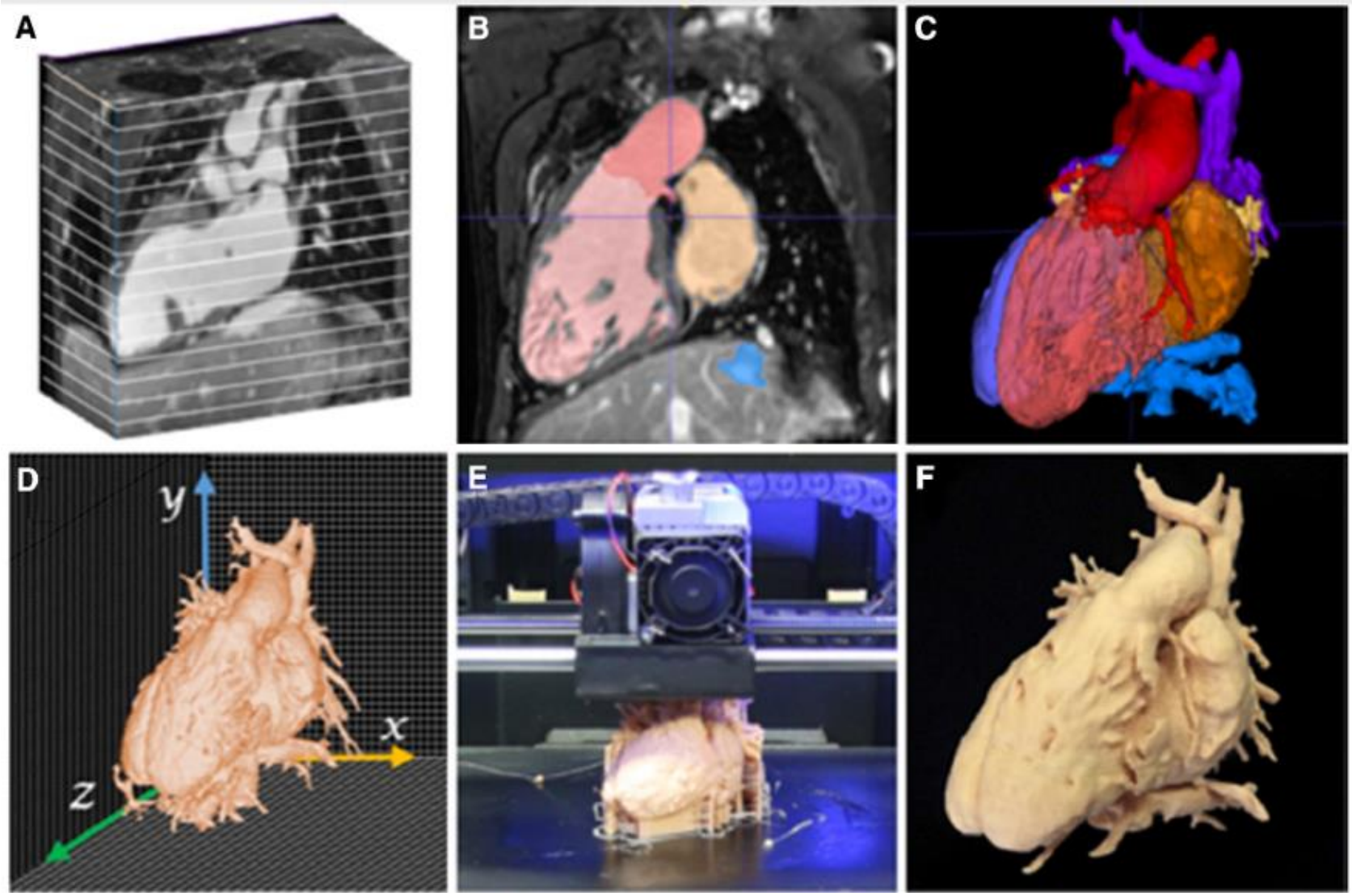

Figure 4. Stages of 3D printing: A) X-ray image; B) segmentation; C) 3D volumetric rendering; D) computer-aided design. E) 3D-printing printing by fused deposition modeling; F) final printed model

VIRTUAL REALITY IN THE STUDY OF THE CARDIOVASCULAR SYSTEM

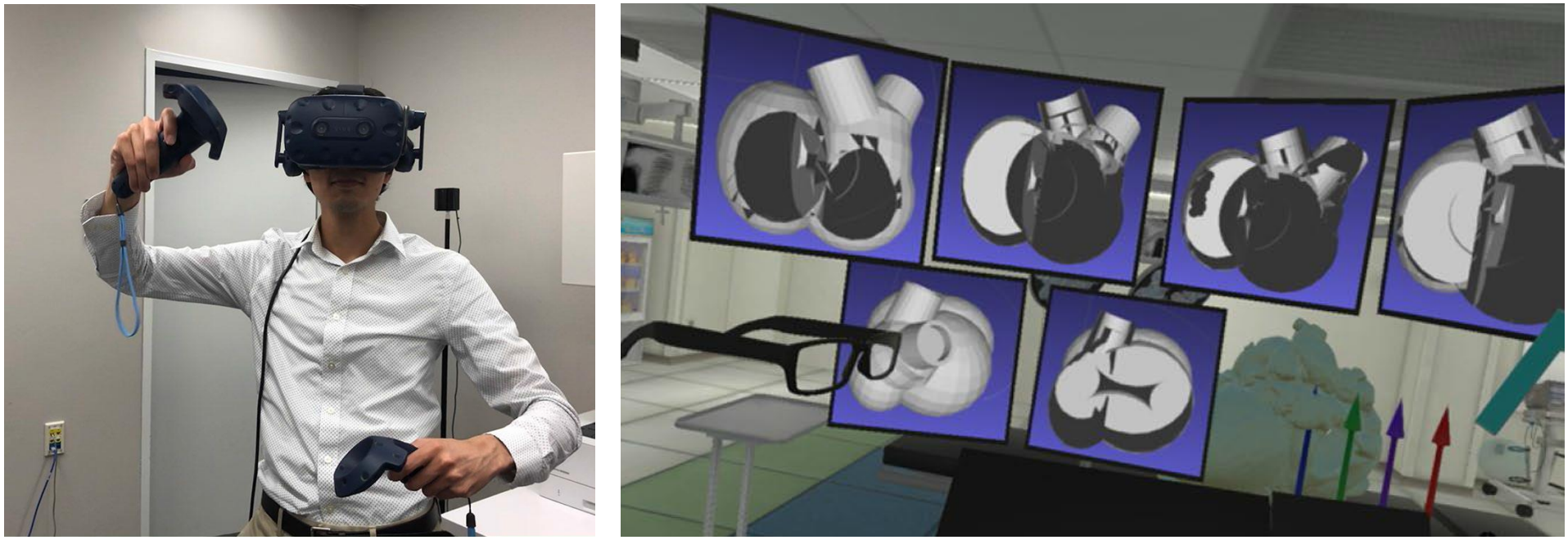

Figure 5. Subject with head-up display and hand controllers for interactive interaction (left). Stereoscopic virtual reality (right) allows users to rotate, move, cut 3D models

THANKS FOR ATTENTION!