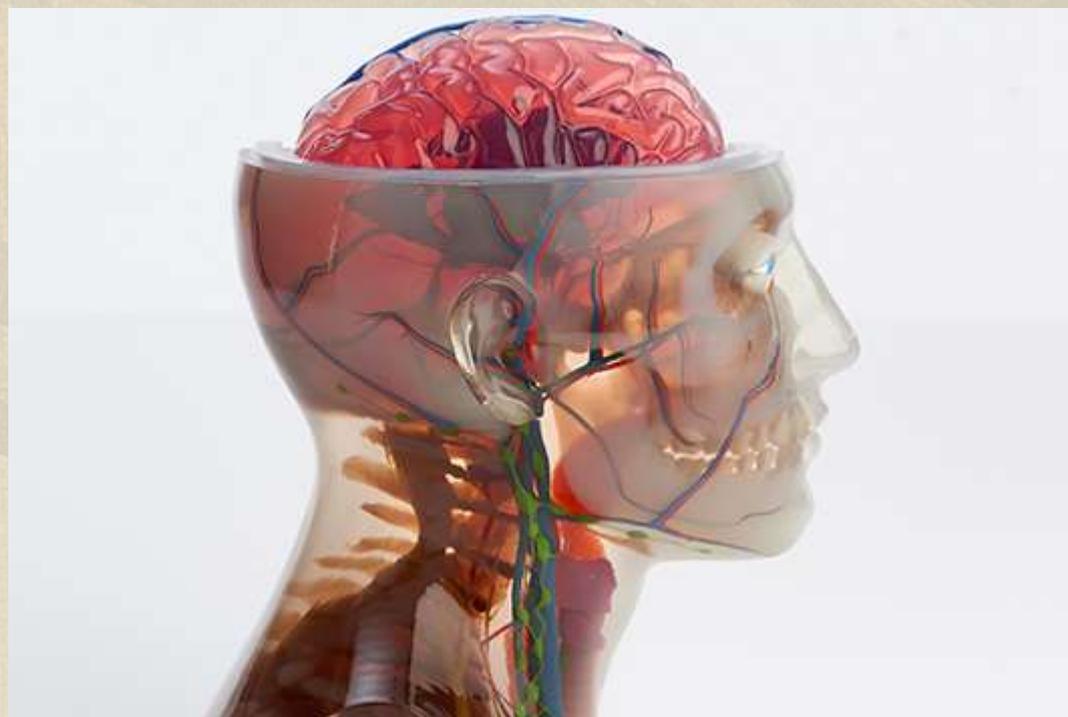




UNIVERSITY OF PÉCS  
MEDICAL SCHOOL

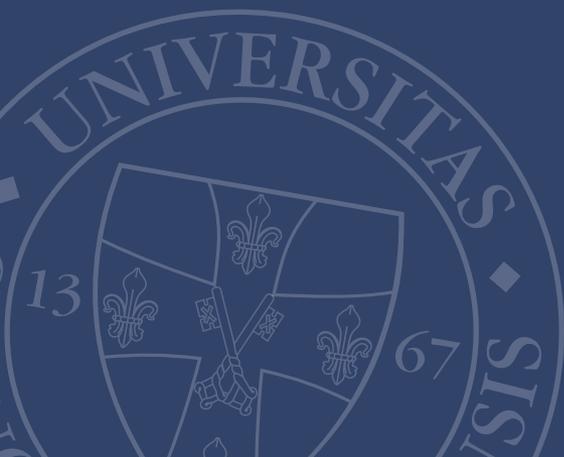
# 3D Technologies at the University of Pécs

[www.medschool.pte.hu](http://www.medschool.pte.hu)



GINOP 2.3.2-15-2016-00022

International Alumni Workshop  
*Budapest, Hungary,*  
*3-5 October, 2018*



# Aims of the project

## Establishment of a University 3D center

- ◆ High-end professional instrumentation;
- ◆ Attracting excellent experts and colleagues;
- ◆ Educational center;
- ◆ Research and development center;
- ◆ Services within the structure of the University.

# Preparation for the project

- ◆ Series of lectures;
- ◆ The first 3D meeting at Pécs (2015);
- ◆ Visiting several 3D meeting;
- ◆ Building national and international networks
- ◆ Initiation of educational progresses.

# Composition of the project team

**Five** of the ten faculties of the University of Pécs are directly involved in research projects: **Arts, Natural Sciences, Economy, Engineering, Medicine.**

Partner university: **University of Debrecen.**

Two secondary schools and primary schools is also included.

# The center after renovation



# The 3D center



# The 3D center



# The 3D center



# The 3D center







# The ultimate key to success: human resources

- ◆ Colleagues already dealing with similar technologies **at the University**;
- ◆ We have support for hiring **new expert engineers and other specialists**: „Biomedical Engineering Center“;
- ◆ **Teaching** at several levels.

# Applications

# Medical 3D applications

- ◆ Design and engineering of surgic processes



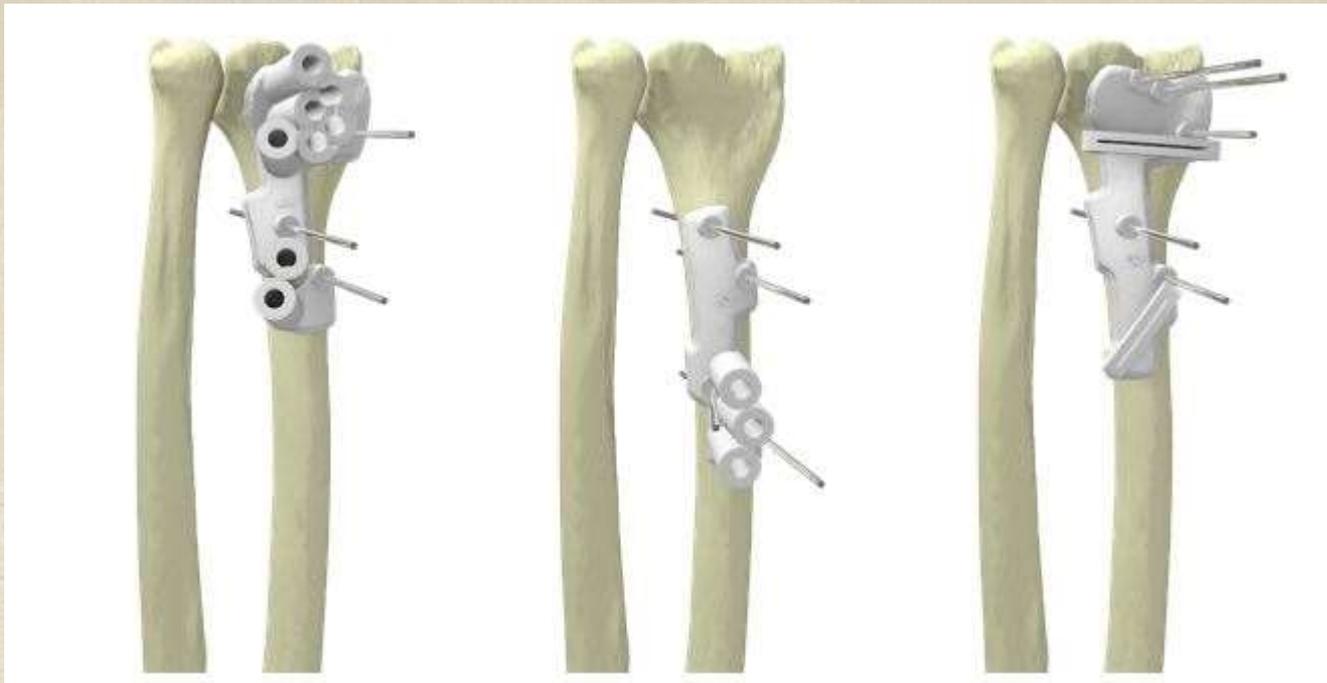
# Medical 3D applications

- ◆ Information to patients



# Medical 3D applications

- ◆ Personalised design and applications



# Medical 3D applications

- ◆ Engineering and fabrication of special equipments



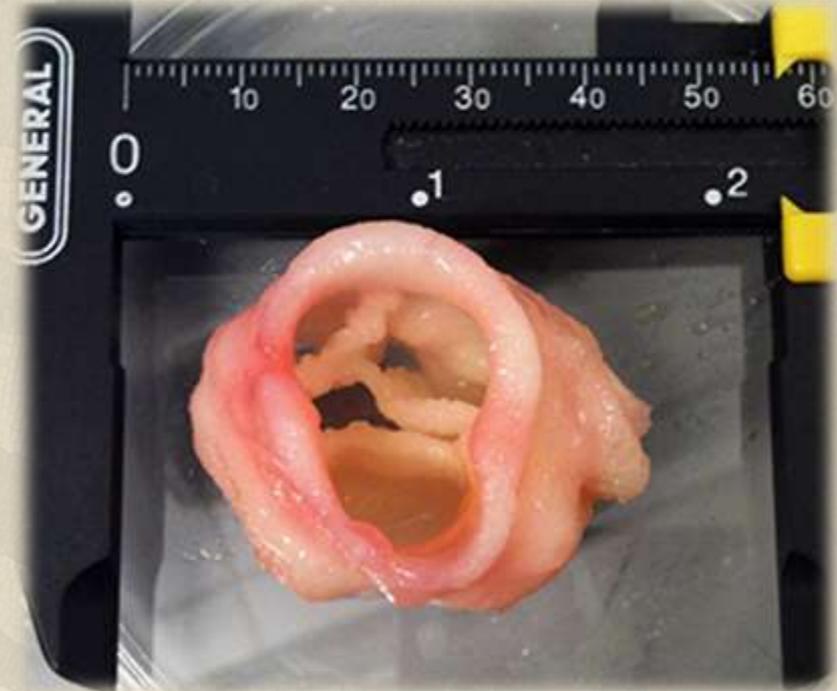
# Medical 3D applications

- ◆ Personalised implants and prostheses



# Medical 3D applications

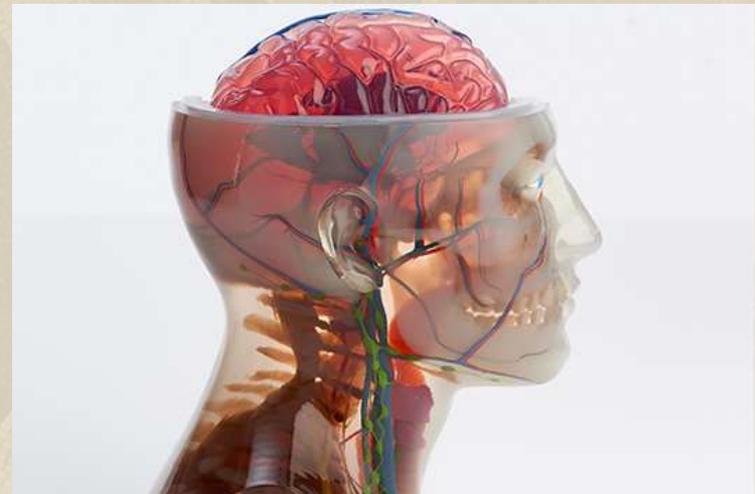
- ◆ Bioprinting



Source: Cornell University New York –  
[theengineer.co.uk](http://theengineer.co.uk).

# Medical 3D applications

- ◆ Visualisation and education



# Medical 3D applications

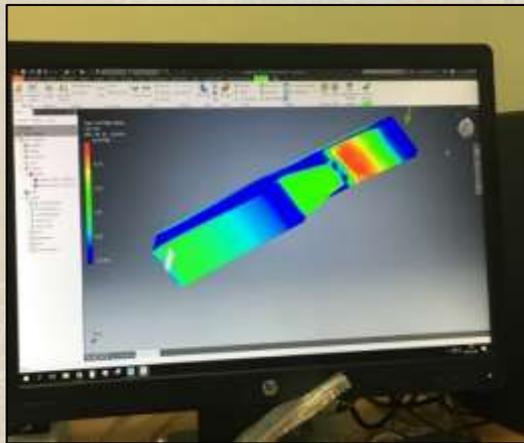
- ◆ Virtual reality (VR)



# Collaborations

# Running industrial collaborations

- ◆ Phoenix project; upper limb training – Gelanyi Inn. Kft.;
- ◆ Application of intelligent metal components;
- ◆ 3D printing in prototyping and then in fabrication.



*NiTinol lemez tervezése. A kész vízvágott lemez, fűtőszállal*



*Funkcionális prototípus*

# Running industrial collaborations

- ◆ Myoelectric upper limb prosthesis – CorvusMed Kft.;
- ◆ Novel, conducting plastic components; tests and characterisation.

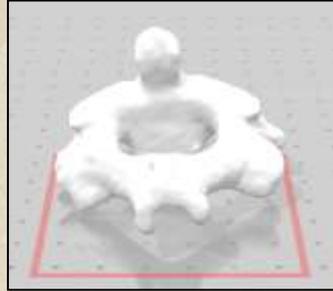


A protézis elektronikája



Az összeszerelt prototípus, Myo Armband-al

# Clinical design

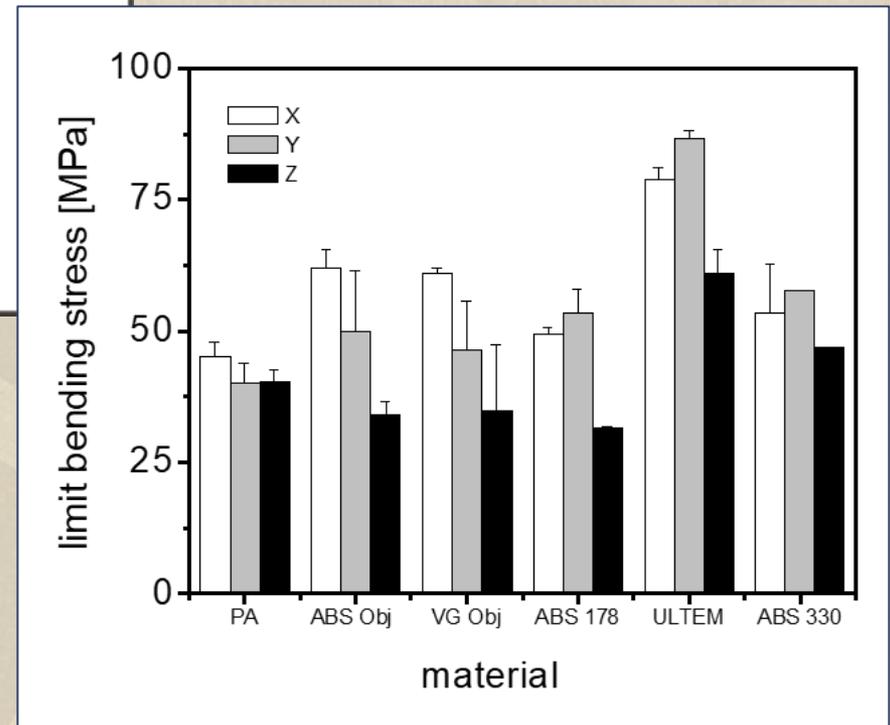
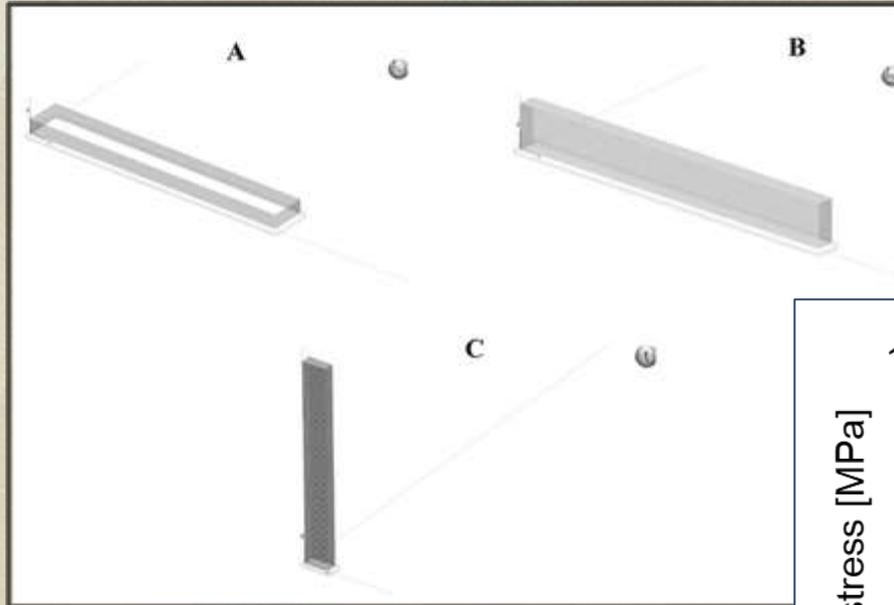


- ◆ Equipment design with the Neurology Clinic;
- ◆ Skull implants with the Orthopaedics Clinic.

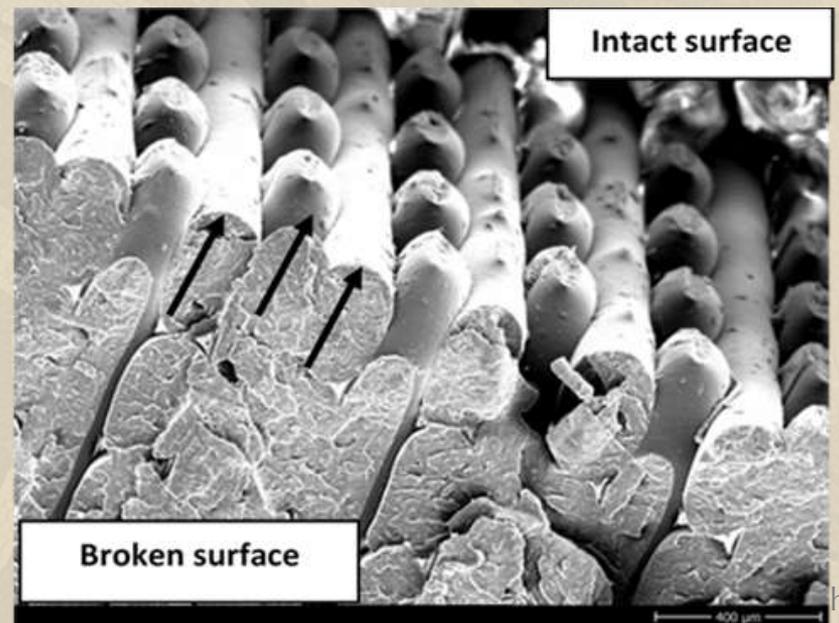
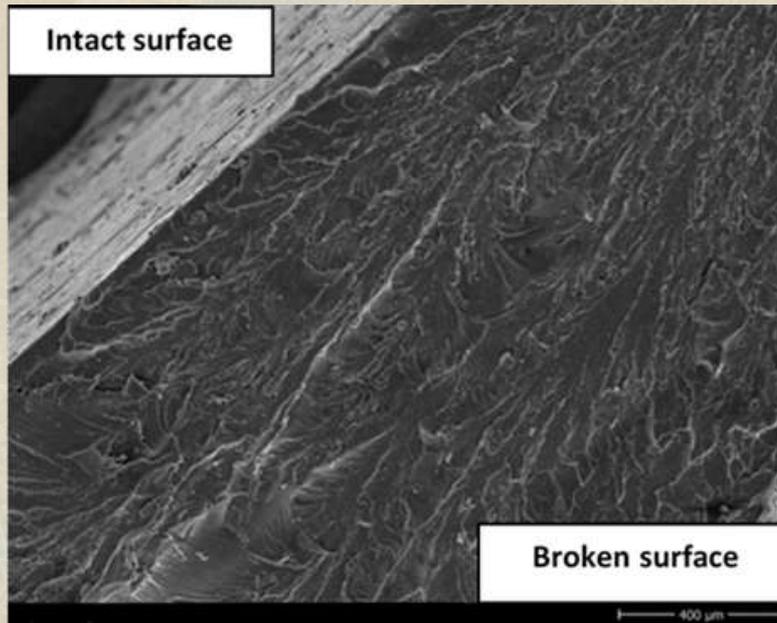
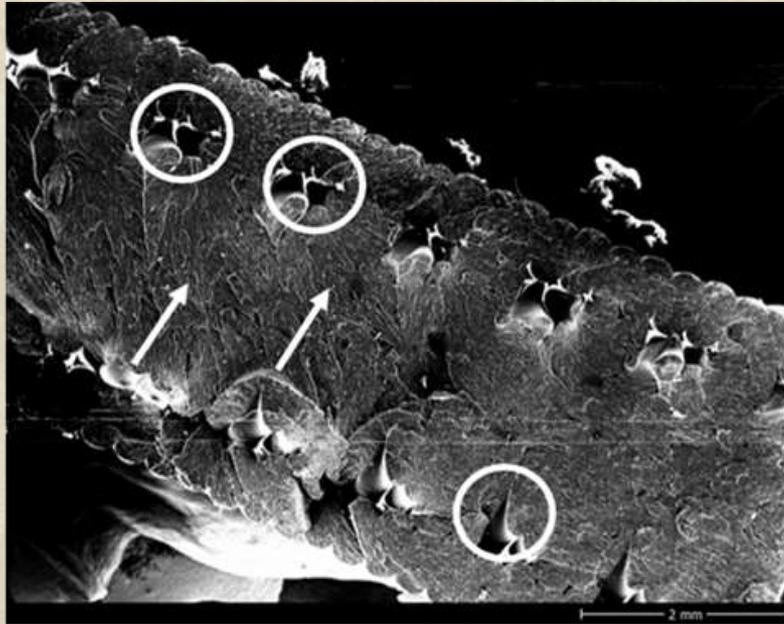


*Csigolya .stl képe, és az FDM nyomtatott minta*

# Research in material sciences



# Electron microscopy



# Problems, lessons, plans

# Thank you!

