



BRIGTH project - Boosting the scientific excellence and innovation capacity of 3D printing methods in pandemic period



Co-funded by the
Erasmus+ Programme
of the European Union

Boosting the scientific excellence and innovation capacity of 3D printing methods in pandemic period – BRIGTH

2020-1-RO01-KA226-HE-095517

BRIGTH closing ceremony – BRIGTH International summer school 2021 edition

Assoc. Prof.dr.eng. Razvan Pacurar

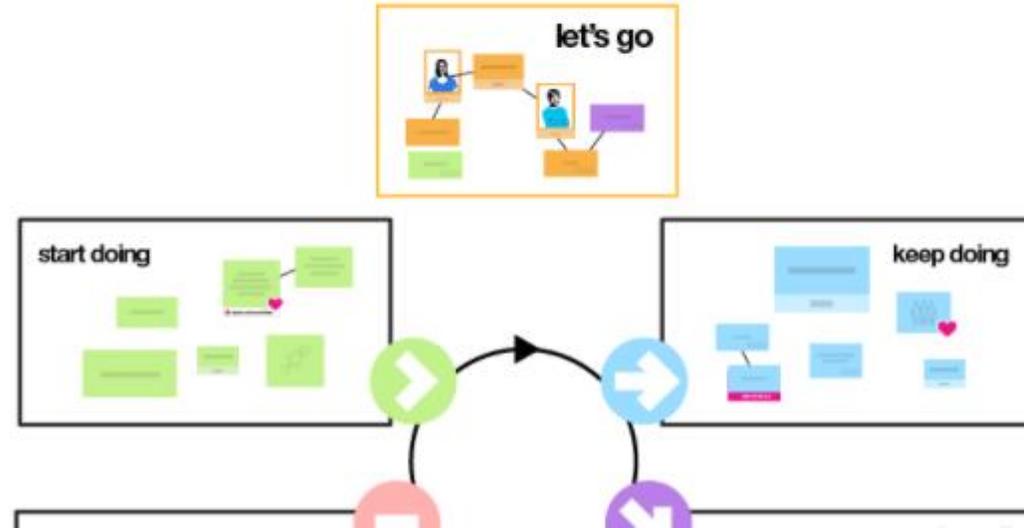
Department of Manufacturing Engineering,

Faculty of Industrial Engineering, Robotics & Production Management, TUCN, RO

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retrospective



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1st day of the BRIGTH International summer school– Opening ceremony



Opening ceremony



Project and partners' presentation

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Announcements about the main aims of BRIGTH International Summer School 2021 edition!

VERY IMPORTANT TO KNOW!!!!

Certificates with ERASMUS + label will be offered to the BRIGTH International summer school participants at the end, **if the following conditions are fulfilled:**

- 1. the participants have attended to **minimum 75 %** of activities held at the BRIGTH Summer school (this includes lectures, presentations, labs, seminars, etc.);**
- 2. the participants have defended **the final test**;**
- 3. the participants have fulfilled **the final questionnaire**.**

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Challenge and strong motivation 😊

Most active students at BRIGHT summer school will be supported by the BRIGHT consortium to apply for ERASMUS scholarships for the BRIGHT International Summer School to be organized next year in Croatia (Brijuni Island) (July 2022) + they will have the chance to apply and work for their diploma projects in the field of 3D printing / VR/ AR / medical applications with the support and under supervision of BRIGHT partners consortium)!!!



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TECHNICAL UNIVERSITY OF CLUJ-NAPOCA ROMANIA

BRIGHT International Summer School on:

3D printing for medical applications

19 - 30 JULY 2021

WHO can apply
Bachelor students (BSc)
Master students (MSc)
PhD students

SPECIALIZATIONS:
Manufacturing Engineering
Mechatronics & Robotics
Mechanical & Bio-Mechanical Engineering
Science of Materials
Physics & Chemistry
Medicine & Pharmacy

Co-funded by the Erasmus+ Programme of the European Union

Organized by **Technical University of Cluj-Napoca**
In cooperation with

www.bright-project.eu
Registration until 1st of July 2021

Logos: University of Pitesti, University of Medicine and Pharmacy of Cluj-Napoca, STU, bmplast, bizzcom

1. CAD
2. CAE
3. 3D printing and Rapid Tooling methods for medicine
4. Process optimization and software control
5. Materials Science and Strength of Materials
6. Flexible manufacturing systems
7. Medical Engineering standards and tests
8. Virtual / augmented reality (VR / AR) experience
9. 3D printing companies presentations / 3D printing experience
10. Medical institutions presentations (about needs in pandemic)
11. Game on competition
12. Bright challenge debate
13. Virtual tours / visits
14. Round tables with experts coming from engineering / industrial / medical sectors

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Presentation of the course modules that were prepared for IO1 which is ending in 31.07.2021



BRIGT project - Boosting the scientific excellence and innovation capacity of 3D printing methods in pandemic period

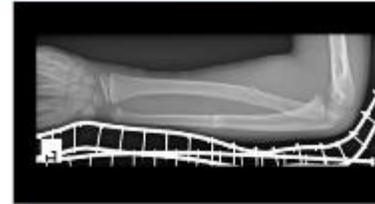


Co-funded by the Erasmus+ Programme of the European Union

Computer Aided Design of 3D printed medical products

Filip GÓRSKI, PhD, DSc, BEng, Associate Professor
Poznan University of Technology,
Faculty of Mechanical Engineering
filip.gorski@put.poznan.pl

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Janek and his fancy 3D printed broken arm stabilizer
3 iterations in 3 days!



CAD module held by Prof. Filip Gorski, Univ of Poznan, PL

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BRIGT project - Boosting the scientific excellence and innovation capacity of 3D printing methods in pandemic period



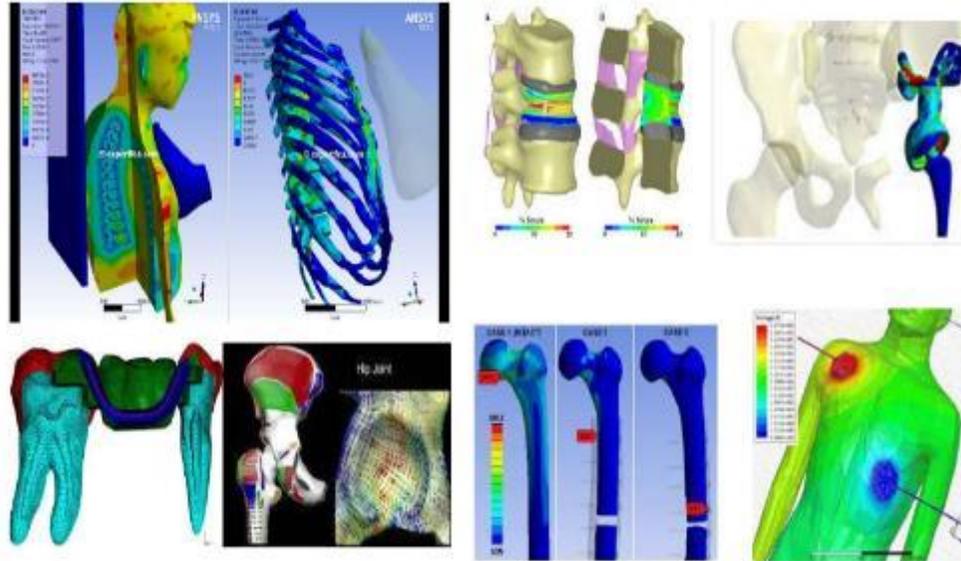
Co-funded by the Erasmus+ Programme of the European Union

Computer Aided Engineering for Medical Applications

Assoc. Prof.dr.eng. Razvan Pacurar

Department of Manufacturing Engineering,
Faculty of Industrial Engineering, Robotics & Production Management,
TUCN, RO

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CAE module held by Associate Prof. Razvan Pacurar, TUCN, RO

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Presentation of the course modules that were prepared for IO1 which is ending in 31.07.2021



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3D Printing and Rapid Tooling Methods for Medical Applications

Assoc. Prof.dr.eng. Razvan Pacurar

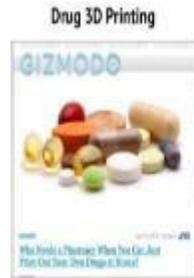
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Multi-materials 3D printing and bio 3D printing technologies



Applications of 3D printing and bioprinting technology



3D printing and Rapid Tooling module held by Associate Prof. Razvan Pacurar, TUCN, RO

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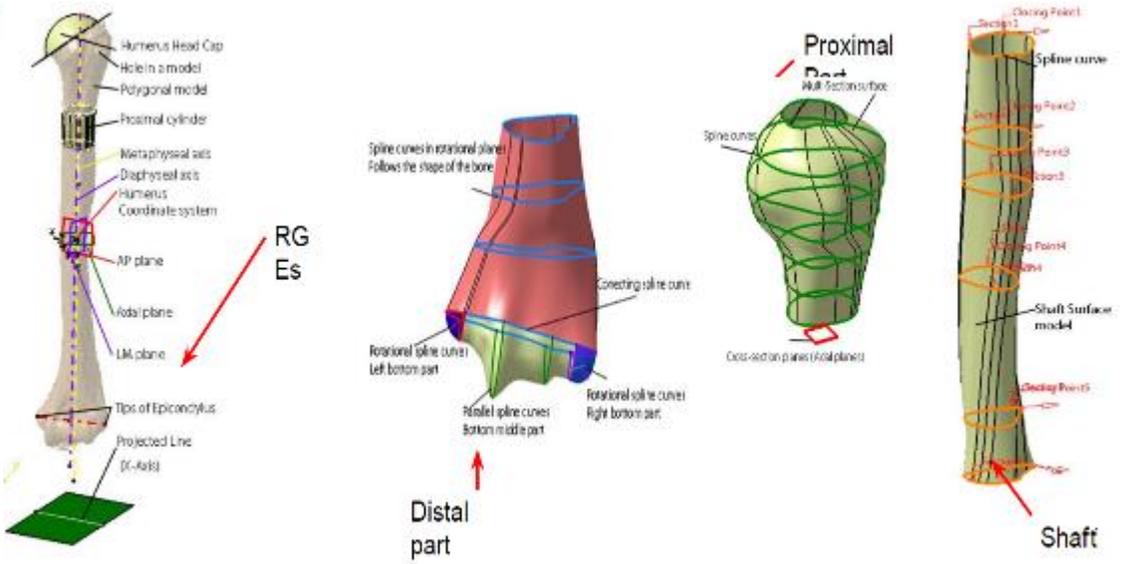
Co-funded by the Erasmus+ Programme of the European Union

University of Nis
Faculty of Mechanical Engineering

PROCESS OPTIMIZATION AND SOFTWARE CONTROL

Ass. Prof. Nikola Vitković
Laboratory for Intelligent Production Systems – LIPS
Head of Information system
University of Nis, Faculty of Mechanical Engineering, Serbia

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Process optimization and software control module held by Associate Prof. Nikola Vitkovic, Univ. of Nis, SRB

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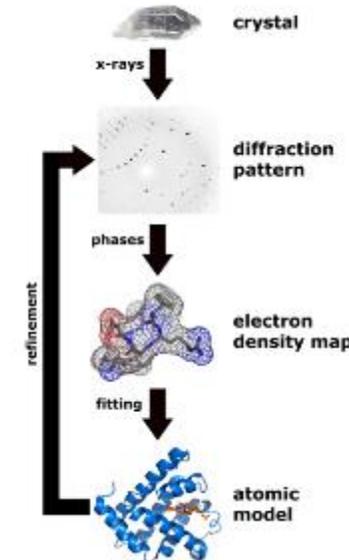
Co-funded by the Erasmus+ Programme of the European Union

Materials Science and Strength of Materials in medicine

Remigiusz LABUDZKI, PhD Eng (remigiusz.labudzki@put.poznan.pl),

Faculty of Mechanical Engineering
POZNAN UNIVERSITY OF TECHNOLOGY
POLAND

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Materials Science and Strength of Materials module held by Prof. Remigiusz Labudzki, Univ of Poznan, PL

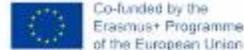
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Flexible manufacturing systems in medical applications

Peter Košťál, Vanessa Prajová



New kinematics for industrial robots

A parallel manipulator is a mechanical system that uses several computer-controlled serial chains to support a single platform, or end-effector. Perhaps, the best known parallel manipulator is formed from six linear actuators that support a movable base for devices such as flight simulators. This device is called a Stewart platform or the Gough-Stewart platform in recognition of the engineers who first designed and used them.

video



Medical replacements manufacturing

Join replacements

- In the US alone, surgeons perform more than 600,000 knee replacements and about 330,000 hip replacements each year.



manufacturing_1



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Flexible manufacturing systems in medical applications module held by Prof. Peter Kostal, STU Bratislava, SK

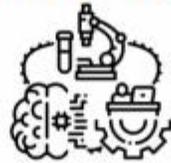
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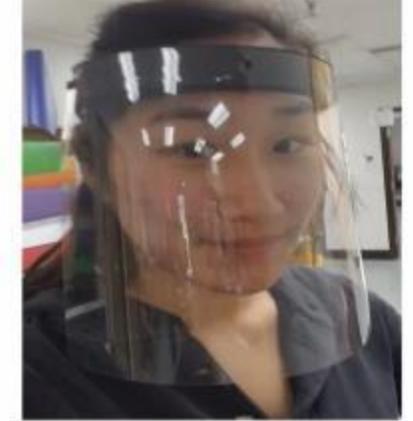
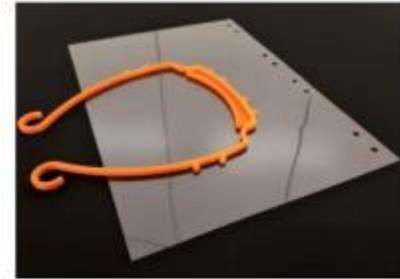
Presentation of the course modules that were prepared for IO1 which is ending in 31.07.2021



Medical Engineering Standards and Tests



Sven Maricic, Ivan Veljovic, Matea Grdic



Medical engineering and tests module held by Prof. Sven Maricic, Univ. of Juraj Dobrila, Istria, HR

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Presentation of the course modules that were prepared for IO1 which is ending in 31.07.2021



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BRIGTH

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1. CAD
2. CAE
3. 3D printing and Rapid Tooling methods for medicine
4. Process optimization and software control
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7. Medical Engineering standards and tests

Course modules were presented at the BRIGTH International Summer School edition 2021 and were evaluated by the students via the fulfilling of one questionnaire

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Evaluation of students that attended the summer school was made in form of a Quizz

Assignments Yesterday 2:37 PM

BRIGHT Final Quiz

Due Jul 29

[View assignment](#)

← Reply



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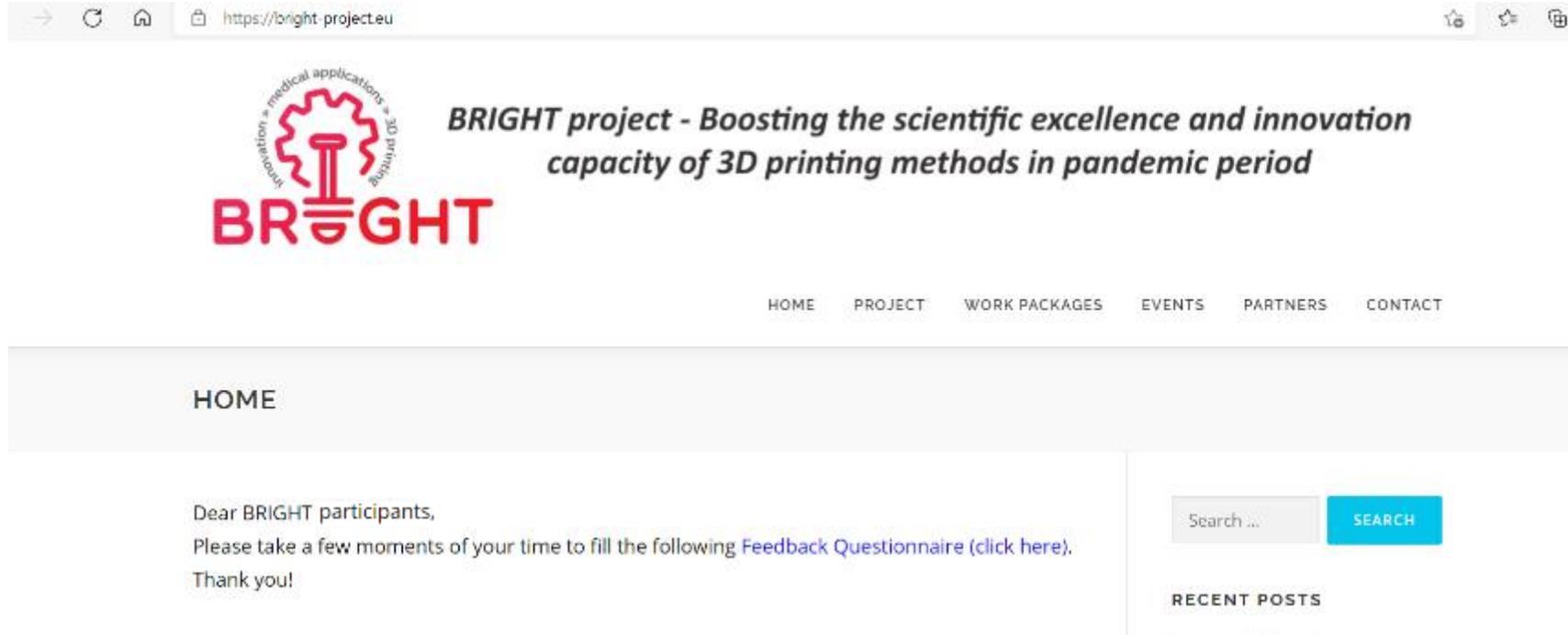


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Fulfilling of BRIGHT questionnaire on the BRIGHT project website



Fulfilling of one questionnaire was made anonymous via the BRIGHT project website

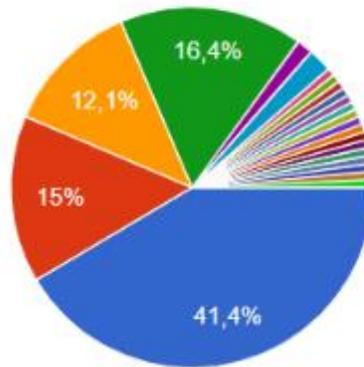
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Fulfilling of BRIGHT questionnaire on the BRIGHT project website

Specialization

133 de răspunsuri



- Manufacturing Engineering / Industrial...
- Computer Science
- Economics and Business
- Mechatronics and Robotics
- Computer Science and Automation
- Biochemistry
- Mechanical / Bio-Mechanical Engineer...
- Material Engineering
- Junior Survey Engineer
- Medical Engineering
- Material Science
- Material science
- Medicine
- Electrical engineering
- Chemical and processing engineering
- Biomedical Engineering
- High school student
- biomedical engineering
- Regenerative and Biopharmaceutical...
- Biomedical Engineering
- Industrial design
- Microelectronics and nanotechnology

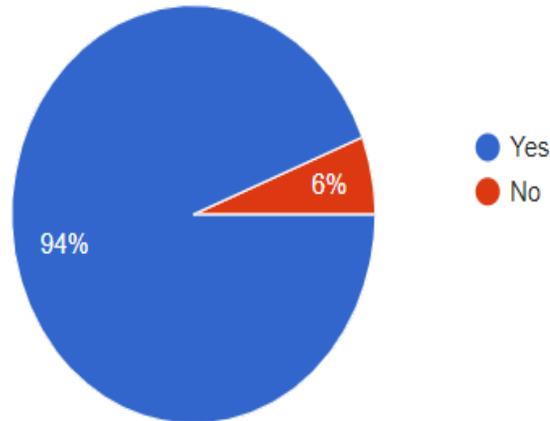
Specializations of BRIGHT International Summer School 2021 participants

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BRIGHT questionnaire results

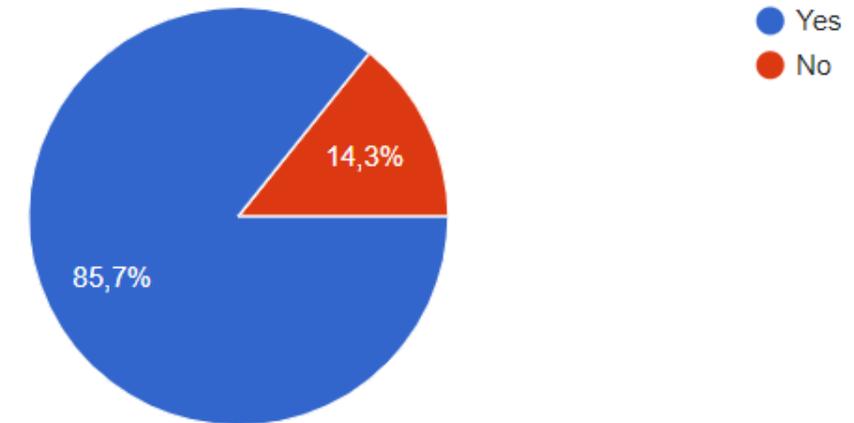
Did the content of the BRIGHT International summer school meet your expectations?

133 de răspunsuri



Was the size of your laboratory working group appropriate?

133 de răspunsuri

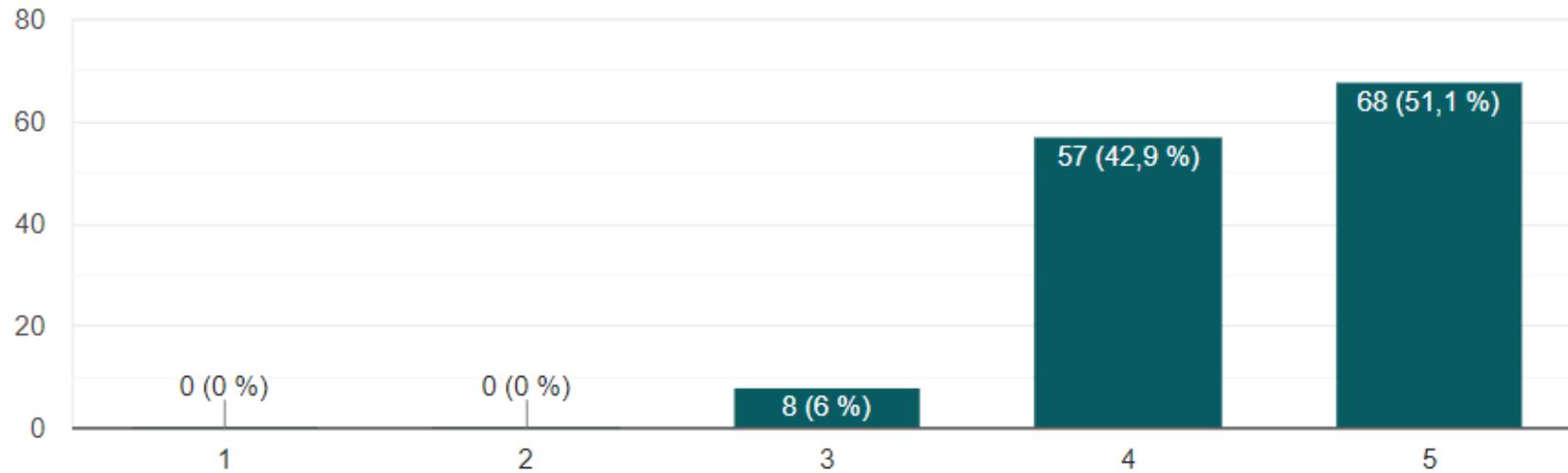


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BRIGTH questionnaire results

How would you rate the quality of the presentations held on the BRIGTH International summer school?

133 de răspunsuri

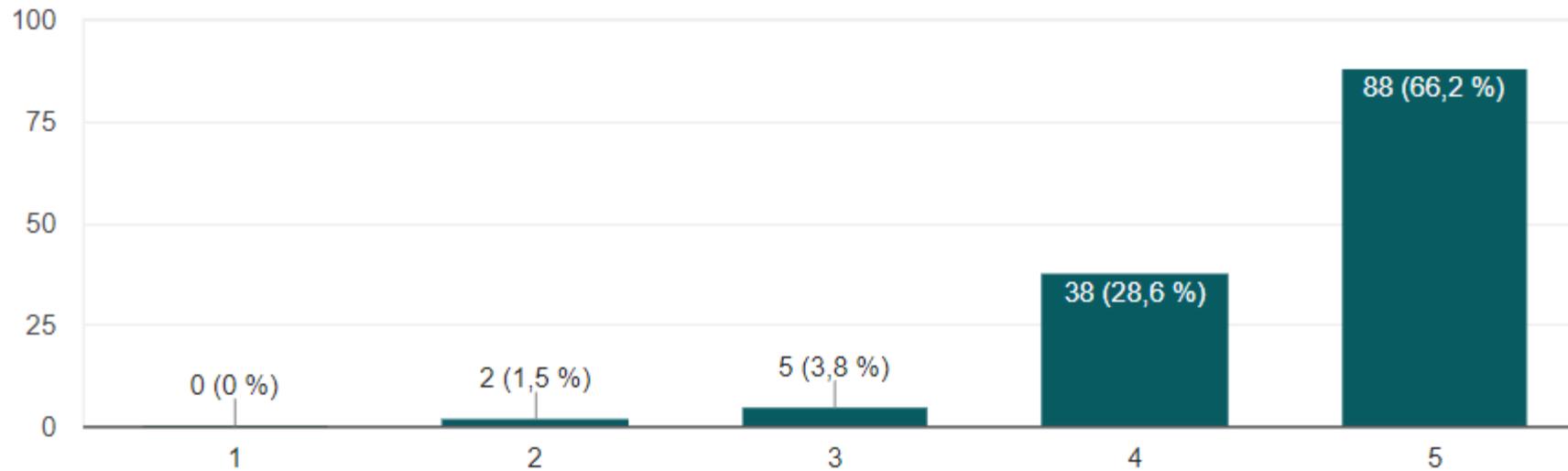


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BRIGHT questionnaire results

How would you rate the scientific level of the course modules prepared for the BRIGHT International summer school?

133 de răspunsuri

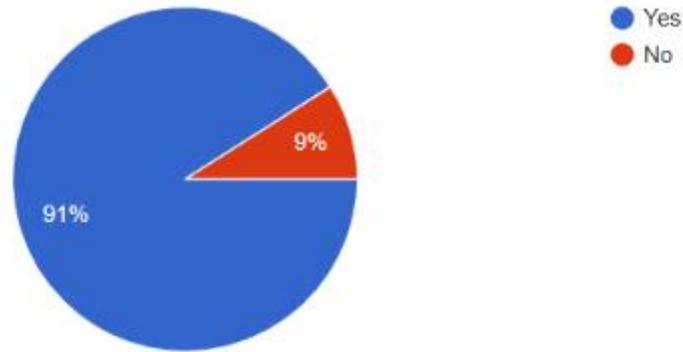


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BRIGHT questionnaire results

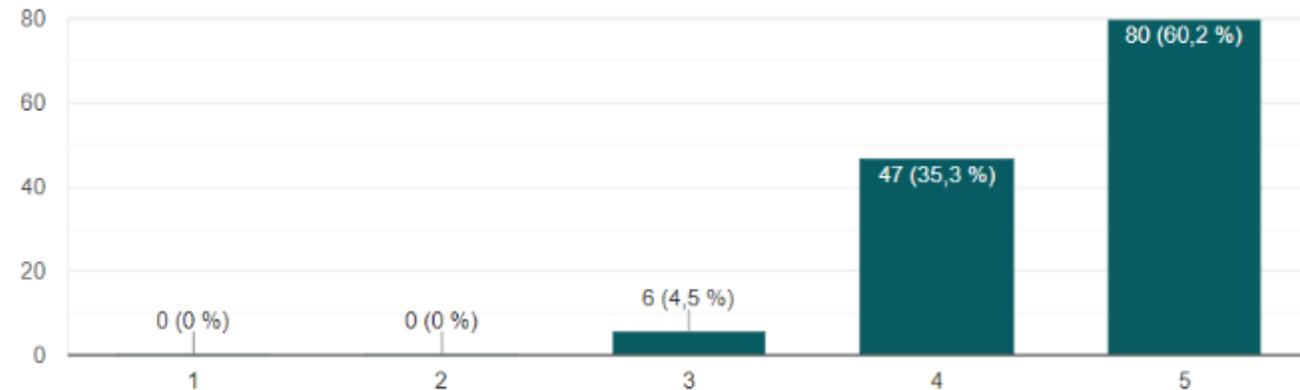
Was the mix of presentations and laboratory activities / seminars suitable?

133 de răspunsuri



How would you rate the quality of the lecturers presentations?

133 de răspunsuri

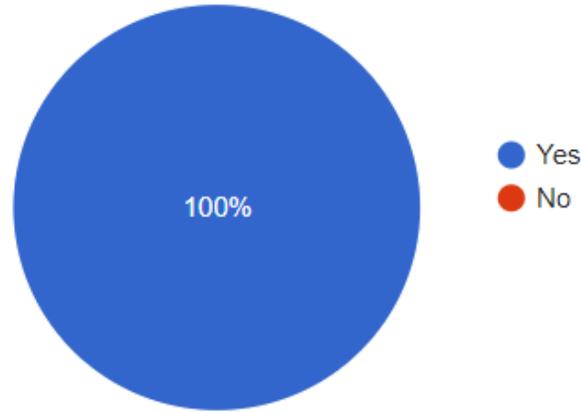


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BRIGHT questionnaire results

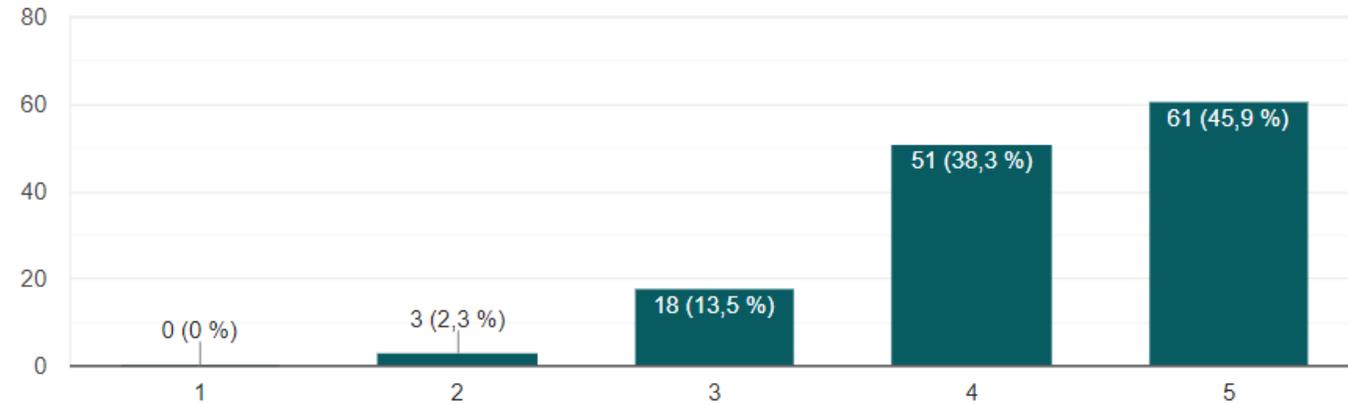
Did you learn anything new?

133 de răspunsuri



Was the BRIGHT International summer school relevant and in concordance to your needs?

133 de răspunsuri

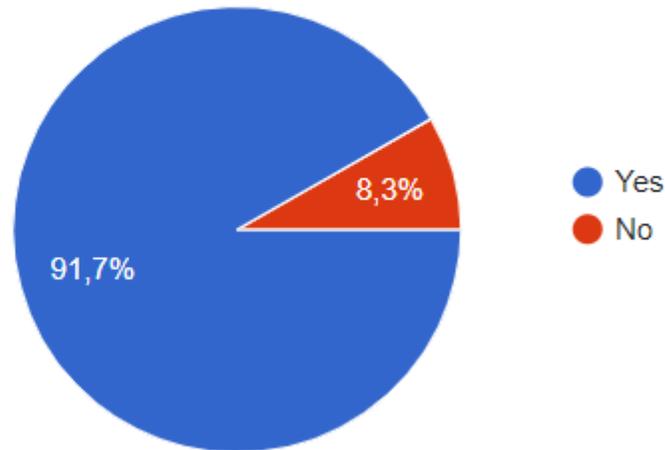


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BRIGTH questionnaire results

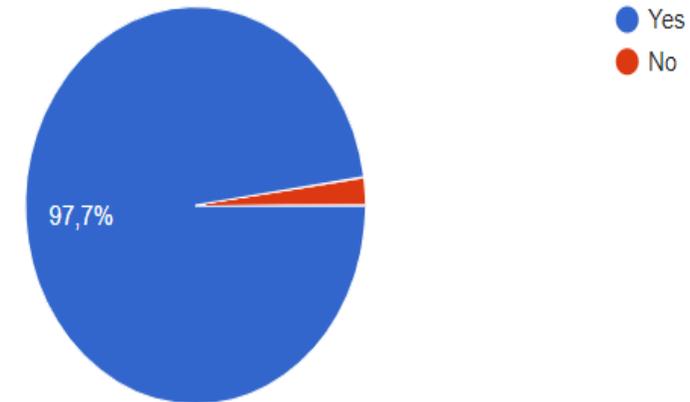
The lectures were practical and/or easy to apply?

133 de răspunsuri



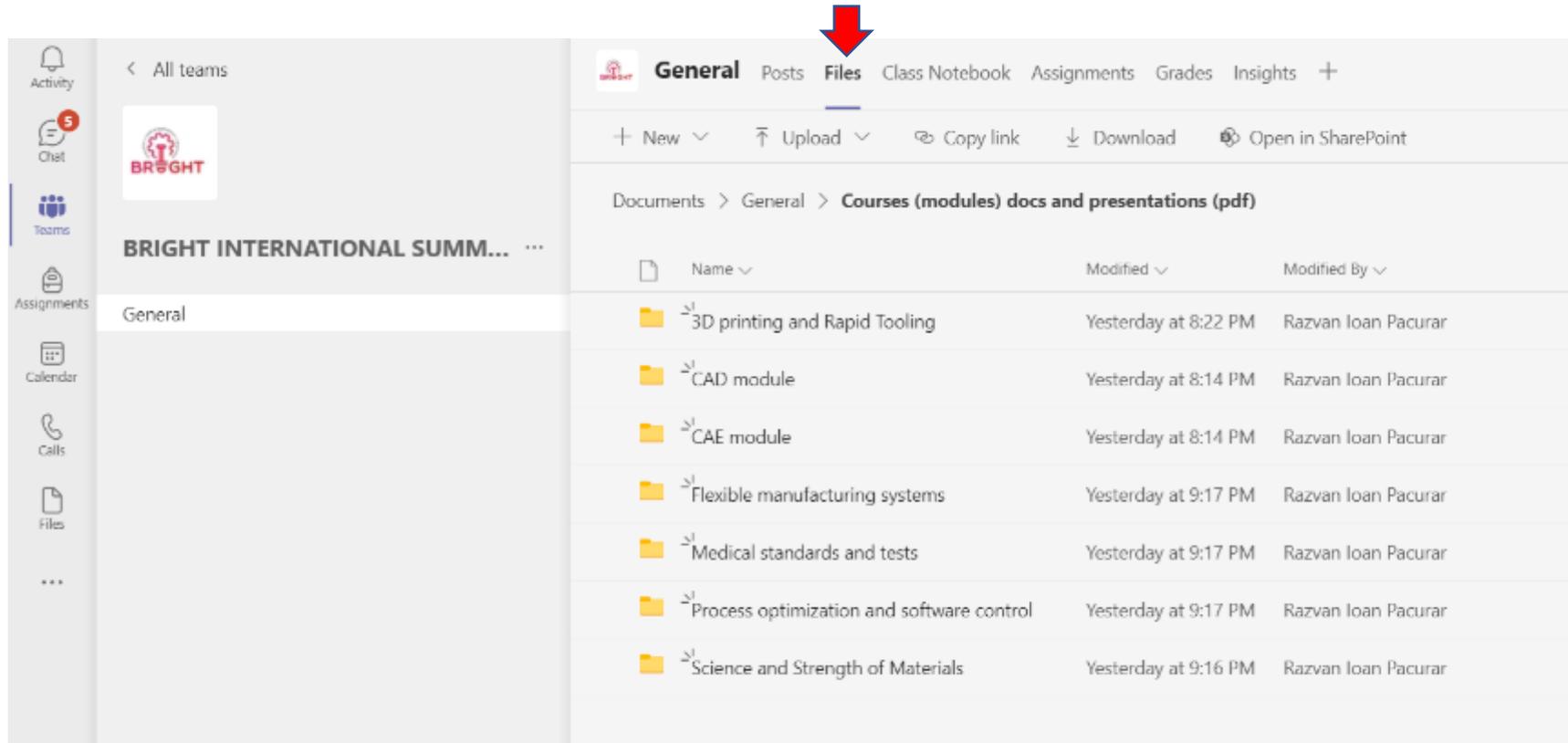
If BRIGTH International summer school will be organized in the future you will recommend this event to your friends / colleagues / etc.?

132 de răspunsuri



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Course modules uploaded on Ms Teams with free and open access to everyone



Course modules and presentations (pdf) were uploaded on the Files folder on Ms Teams (without any constraints or restriction / free of charge and with open access to each participant at the BRIGTH International Summer School event

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BRIGTH International Summer School on:

3D printing

for medical applications

Beside modules related to IO 1 – other lectures related to the topic of the BRIGTH International Summer school were held by colleagues of the BRIGTH consortium, but also outside the consortium (with open access / free of charge)

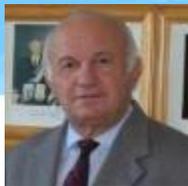
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Lectures and presentations held by other participants at BRIGHT event

Applications of 3D printing in medicine, developed within the National Centre of Innovative Manufacturing (TUCN)

Nicolae Balc, Petru Berce, Mihaela Băciuț, Grigore Băciuț, Horațiu Rotar, Cristian Dinu
Horea Chezan, Răzvan Păcurar, Dan Leordean, Cosmin Cosma, Paul Bere, Mihaela Hedeșiu, Avram Manea, Sebastian Stoia, Tiberiu Tamaș, Mădălina Lazăr

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Reverse engineering in medical applications

Lect. Eng. Stefan BODI, Ph.D.

stefan.bodi@muri.utcluj.ro



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Lectures and presentations held by other participants at BRIGHT event



BRIGHT project - Boosting the scientific excellence and innovation capacity of 3D printing methods in pandemic period



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STRUCTURAL OPTIMIZATION: TOPOLOGY OPTIMIZATION

Nikola Korunović, Assoc. Prof.
korunovic.nikola@gmail.com
Jovan Arandjelović, Asst.
Faculty of Mechanical Engineering in Nis



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Computational Design and Digital Fabrication Lab

Panagiotis Kyratsis
University of Western Macedonia, Greece
www.kyratsis.com



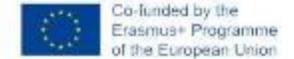
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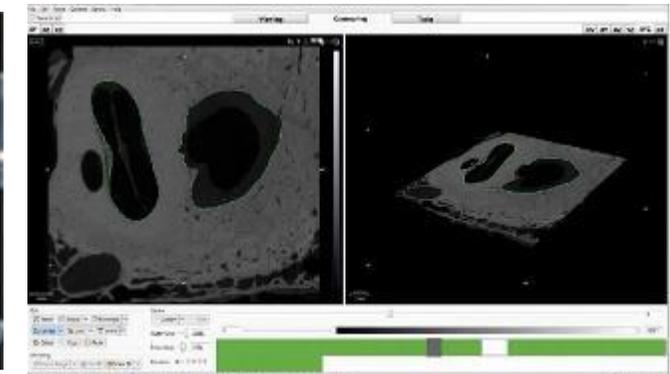
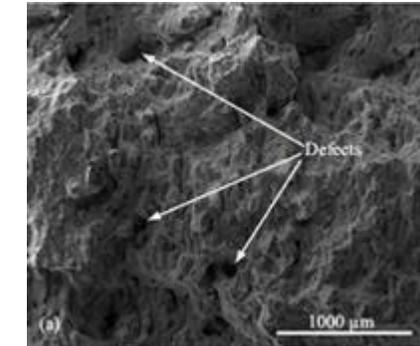
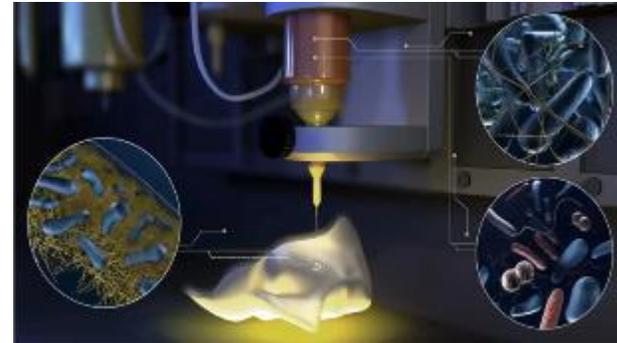
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Lectures and presentations held by other participants at BRIGHT event

Morpho-structural analysis of materials used in Additive Manufacturing

Assoc. Prof. Dr. Eng. Băilă Diana-Irinel
University POLITEHNICA of Bucharest, Romania
Faculty of Industrial Engineering and Robotics

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Lectures and presentations held by other participants at BRIGHT event

BIOMAT
BIOMATERIALS RESEARCH GROUP

3D PRINTED MICROFLUIDIC SYSTEMS FOR BIOMEDICAL APPLICATIONS

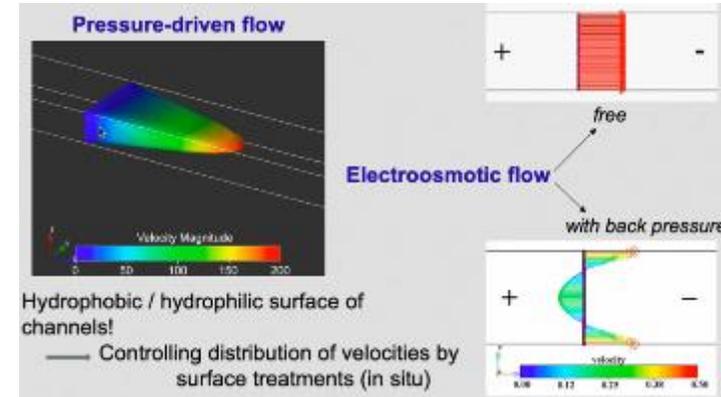
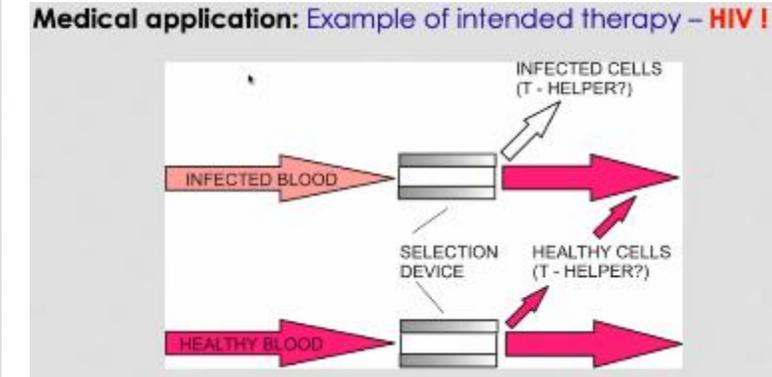
Cătălin Popa, Alexandra Csapai
catalin.popa@stm.utcluj.ro

Technical University of Cluj-Napoca
Faculty of Materials and Environmental Engineering
Department of Materials Science and Engineering
Biomaterials Research Group



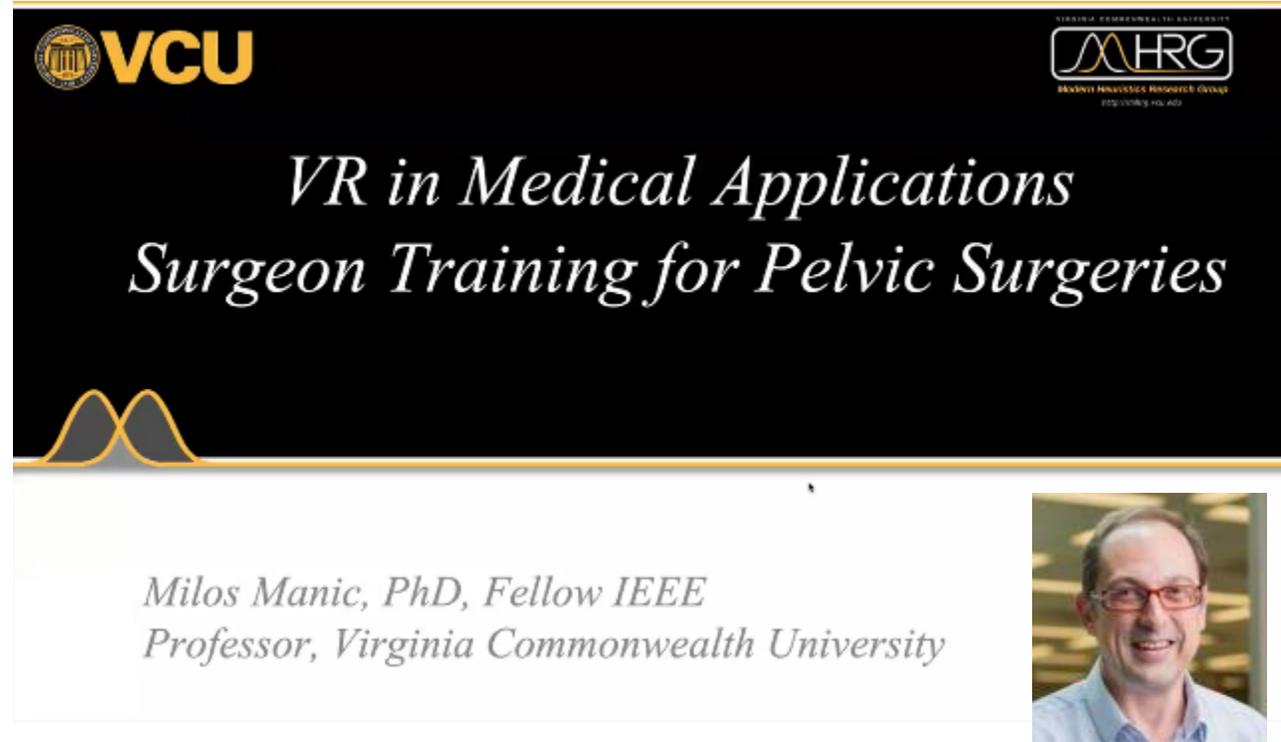
"Bionic Man" – Touch Bionics, Smithsonian (2013)

World's most complete bionic man
The world's most complete bionic man, Ray White, is shown in his bionic suit. He has bionic eyes, ears, nose, mouth, and hands. He is also a quadriplegic and has a bionic neck and spine. He is the first person to have a bionic nose and a bionic mouth. He is also the first person to have a bionic ear and a bionic eye. He is the first person to have a bionic hand and a bionic foot. He is the first person to have a bionic neck and spine. He is the first person to have a bionic head and a bionic body. He is the first person to have a bionic mind and a bionic soul.



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Lectures and presentations held by other participants at BRIGHT event



VCU **MHRG**

*VR in Medical Applications
Surgeon Training for Pelvic Surgeries*

*Milos Manic, PhD, Fellow IEEE
Professor, Virginia Commonwealth University*




VCU **MHRG**

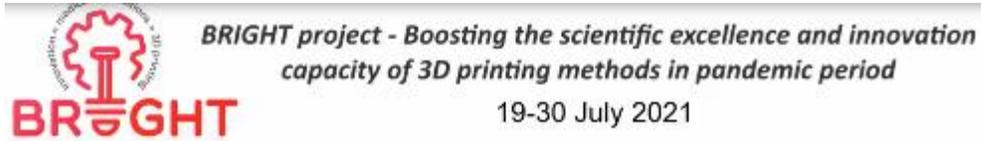
VR in Medical Applications

Surgeon Training for Pelvic Surgeries



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Biomedical applications and challenges

- Personalised approach -

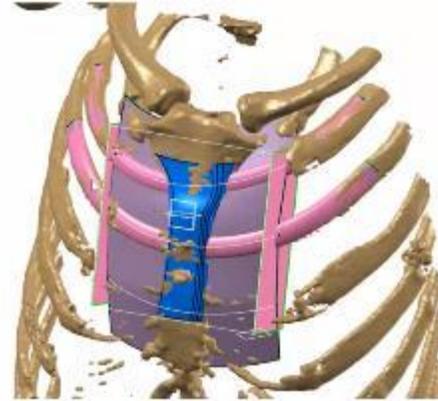
Prof. Dr Miroslav Trajanović

University of Niš, Faculty of Mechanical Engineering

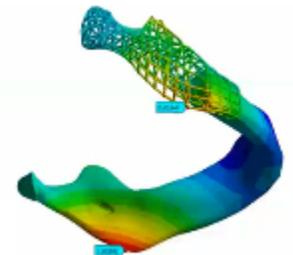
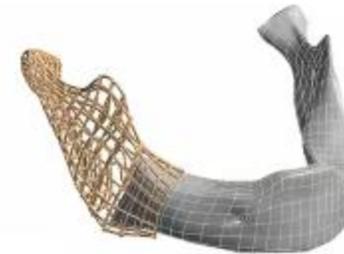
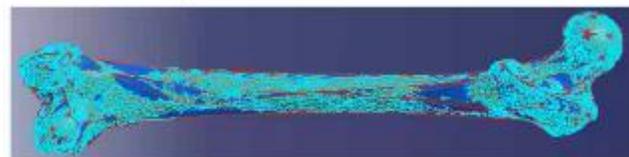
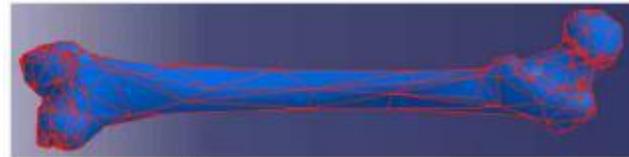
28 July 2021



III41017 Virtual human osteoarticular system and its application in preclinical and clinical practice

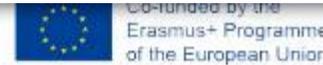
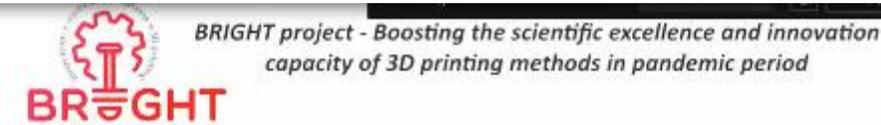


- Endoprotheses
- Fixators
- Macro-scaffolds



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Innovative Robots for Medical Applications: New Trends and Challenges

Prof. Doina PISLA, PhD

Technical University of Cluj-Napoca, Romania

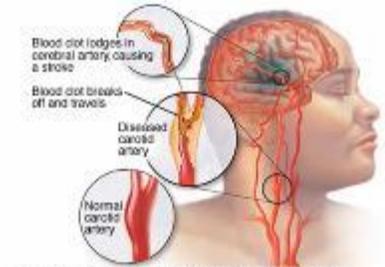
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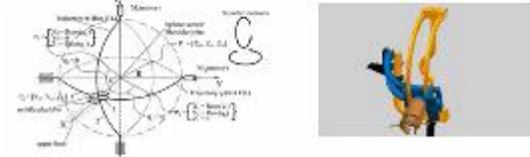
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Kinematic scheme and CAD simulations (results published in Sustainability)



Final design



Experimental model



Clinical trials



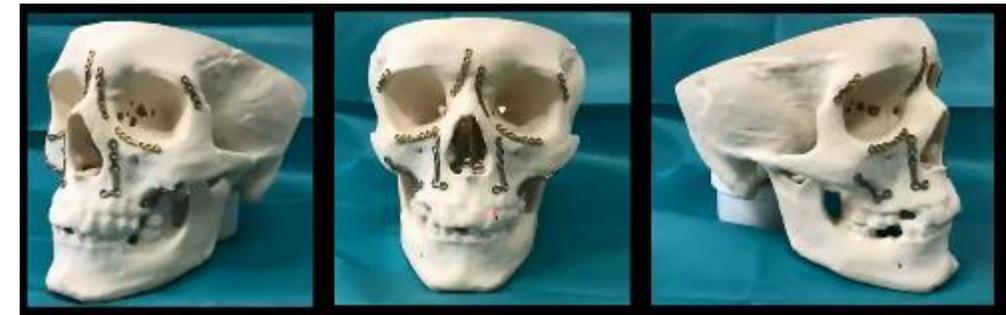
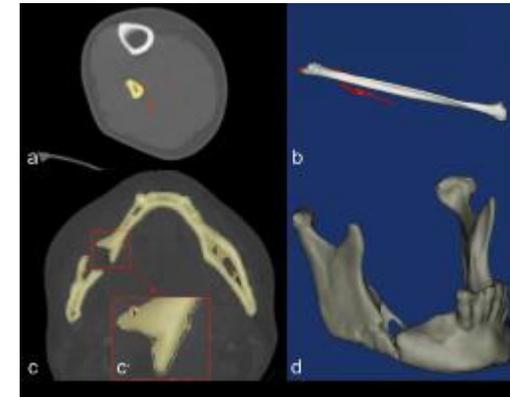
(published patent OSIM 132233/14.06.2017)

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APPLICATIONS OF 3D RAPID PROTOTYPING TECHNOLOGIES IN CRANIO-MAXILLOFACIAL SURGERY

Rotar H, Berce P, Balc N, Ostas D, Ciurea M, Roman R, Termure D, Moldovan M, Stan H, G, Hedesiu M, Baciut M, Manea A, Stoia S, Tamas T, Dinu C.

Department of Maxillofacial Surgery and Radiology, "Iuliu Hatieganu" University of Medicine Cluj-Napoca, Romania



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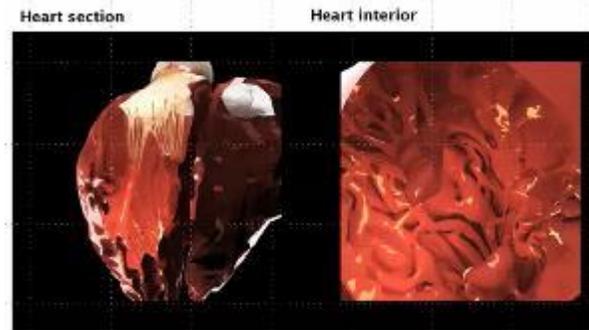
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Virtual Reality for SURGICAL simulation

Ciprian Onetiu - Dynamic Digital Design
ciprian@3Ddesign.ro

3D DESIGN
 Branding / VR / AR / AEC / Web / eLearning courses

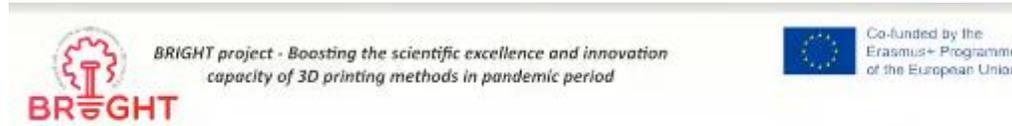
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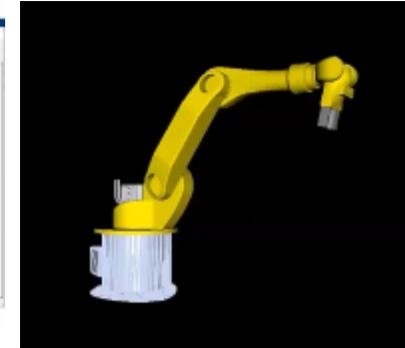
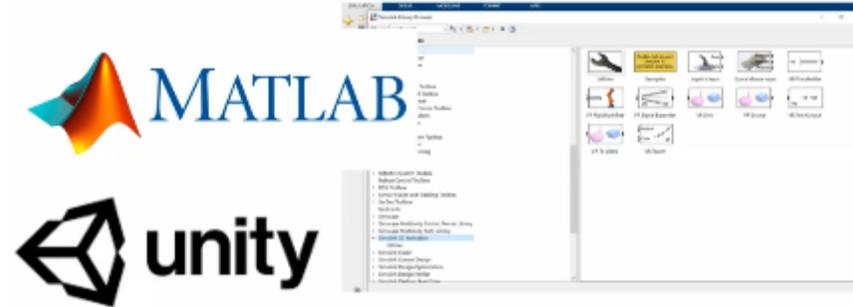
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Virtual Reality Software



Applications for VR developed at TU Cluj-Napoca

Assoc. Prof. Dr. Eng. Sergiu-Dan STAN



VR devices used



There is also increasing use of the Oculus Rift within curricula in other fields such as marketing, architecture, clinical education, computer science and paramedics.

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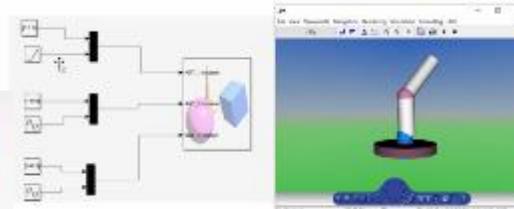
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Applications for VR developed at TU Cluj-Napoca

Research. Eng. Alexandru OARCEA



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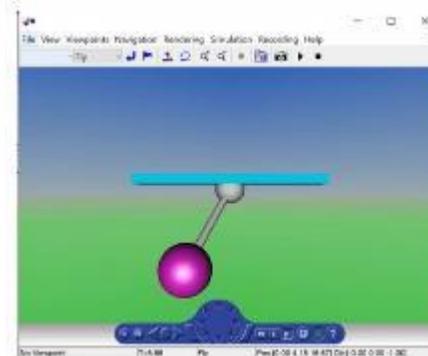
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Applications for VR developed at TU Cluj-Napoca

Research Eng. Victor Cobilean



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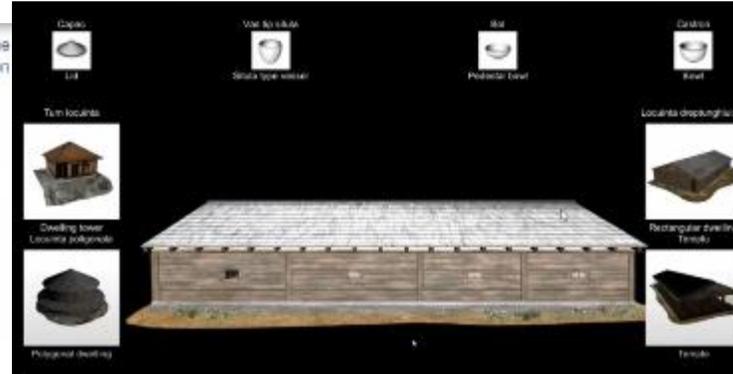
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Applications for VR developed at TU Cluj-Napoca

Lecturer. Dr. Eng. Florin POPISTER



SW to VR

By Lecturer dr.eng. Alin Plesa
Alin.PLESA@mdm.utcluj.ro



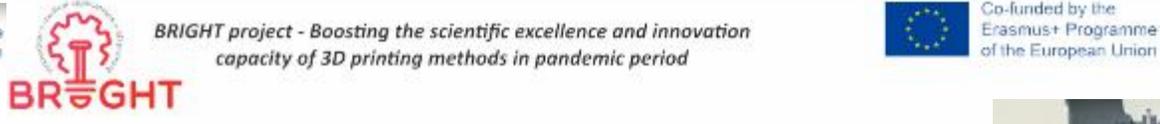
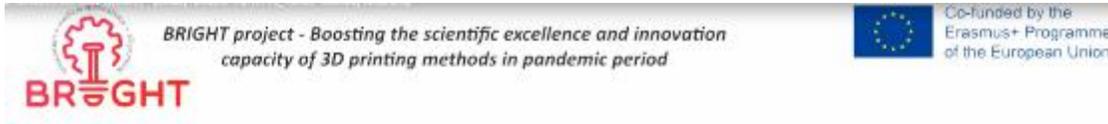
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Seminars held by colleagues at BRIGTH event



Mechanical testing of standard samples

Filip Sarbinowski, MSc Eng
filip.j.sarbinowski@doctorate.put.poznan.pl
 Faculty of Mechanical Engineering
 Poznan University of Technology



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Mechanical testing of orthoses and prostheses

Radosław WICHNIAREK
 Poznan University of Technology,
 Faculty of Mechanical Engineering
radoslaw.wichniarek@put.poznan.pl



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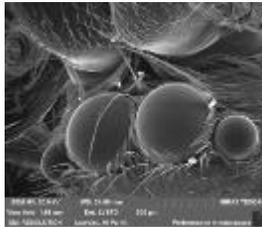
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Mechanical testing of samples realized by 3D printing processes and SEM analyses

Preparation and SEM Microscopic Examinations



MSc. Eng. Maria Ratajczak
maria.ratajczak@put.poznan.pl



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Anisotropy of 3D-printed materials

Cristian VILĂU, Dan-Sorin COMȘA
TU Cluj-Napoca, Romania
Tuesday, 27th July 2021, 9:00-10:00 EET



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Applications of 3D printing in medicine at STU MTF in Trnava

Slovak University of Technology in Bratislava
Faculty of Materials Science and Technology in Trnava
Institute of Production Technologies

Advanced Engineering s.r.o.
Veterná 8760/43
917 01 Trnava, Slovakia

Ivan MOLNÁR, Dávid MICHAL

3 LIFE-SIZE HUMAN MODEL

- Material Extrusion process - FFF additive method - skeleton model
- Fused thermoplastic fibres extruded from the tip of a heated printing head moving in the X and Y axes
- Omni Factory 2.0 (Omni3D) and Sigmax R19 (BCN3D Technologies) production devices/3D printers
- Acrylonitrile Butadiene Styrene (ABS) - plastic material
- Production time - 621 hrs

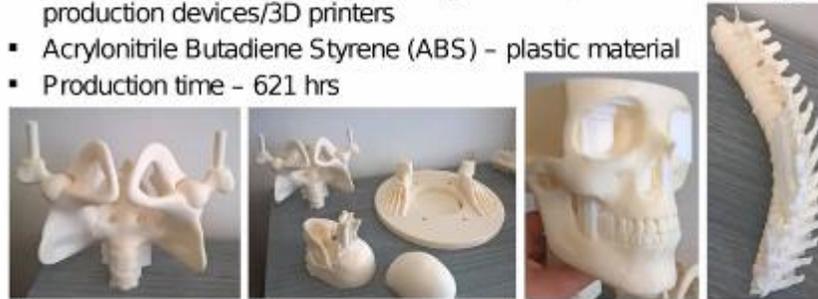
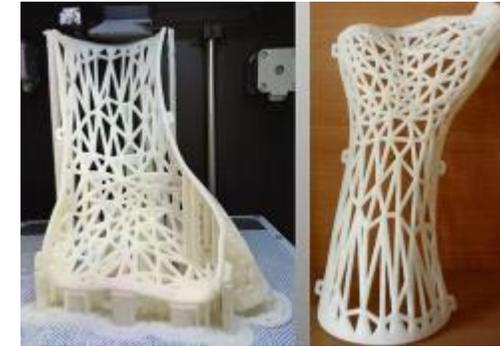
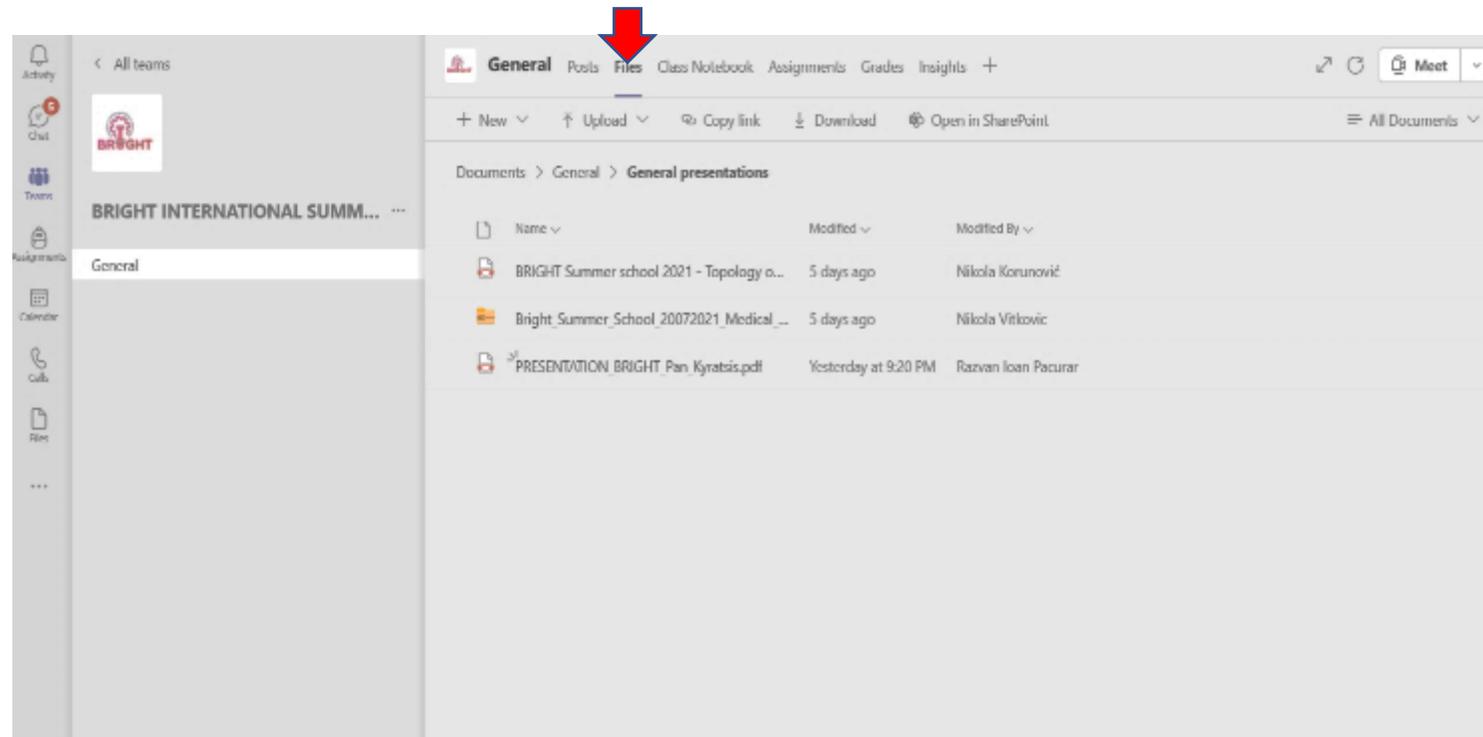


Fig. 9 Several parts of the skeleton model produced by FFF additive method



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Companies and presentations of different important organizations

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Presentations on behalf of City Hall institution of Cluj-Napoca

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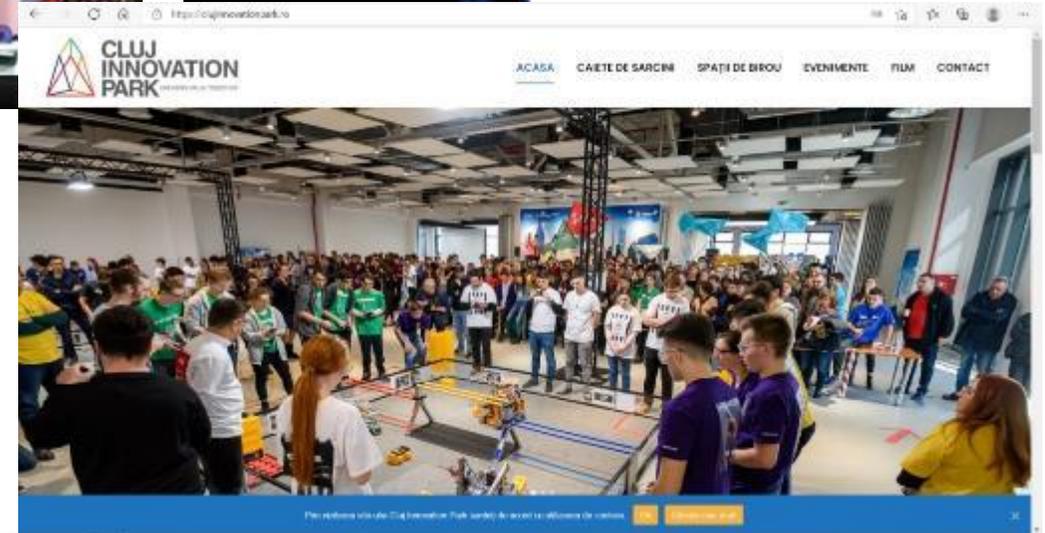
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Logos: University of Medicine and Pharmacy, STU, bmplast, bizzcom



Oana Buzatu and Emilia Botezan, City Hall institution, Cluj-Napoca, RO



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Presentations on behalf of Regional Development Agencies (RO)



**Lavinia Chiş, Department of INNO Platform
Development Agency of the North-West Region of Romania**

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Presentations on behalf of Regional Development Agencies (RO)



**North-West
Regional Development Agency
Romania
-financing innovation-**

*BRIGTH International Summer School
30th July 2021*

S3 Pillars and Domains in North-West



INNOVATION
FOR HEALTH
AND
WELLBEING

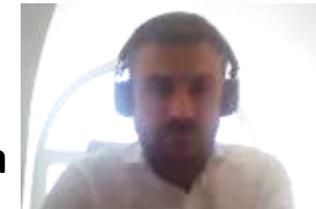


DEVELOPING
THE EMERGING
SECTORS



DIGITAL
TRANSFORMATION

**Cristian Otgon, Department of Intelligent Specialization
Development Agency of the North-West Region of Romania**



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Presentation on behalf of important local cluster

Transilvania DIGITAL INNOVATION HUB

TRANSILVANIA IT CLUSTER

TRANSILVANIA IT CLUSTER

Bianca Muntean, PhD
Transilvania IT Cluster Manager
Transilvania Digital Innovation Hub Coordinator
EU Cluster Manager of the year 2019-2020

CLUSTER MANAGER OF THE YEAR 2019

Cluster Management Excellence



TRANSILVANIA DIH



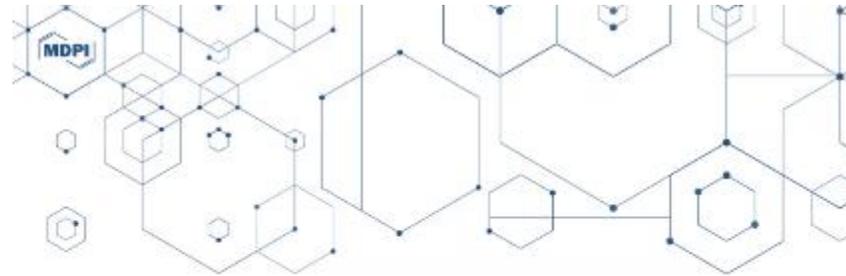
Bianca Muntean, Transilvania IT cluster, RO



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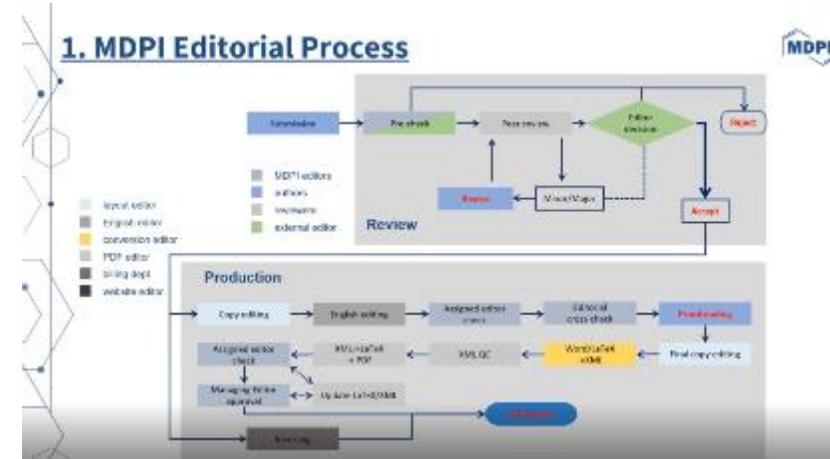
Presentation on behalf of International Publishing Houses about opportunities for disseminating of the results



MDPI Open Access Publishing Romania



<https://www.mdpi.com/journal/materials>



Ms. Irina Pelin and Ms. Anca Banu, MDPI, RO

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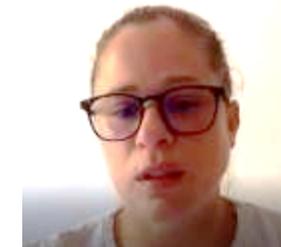
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Presentation of important companies in the field of 3D design and 3D printing

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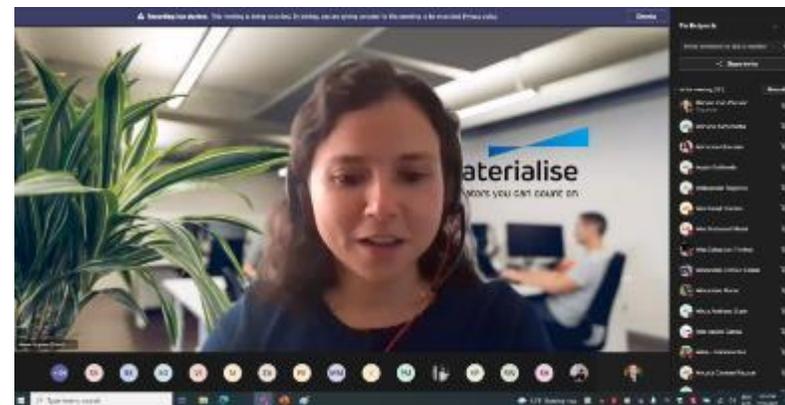
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Diana Skopina, Materialise (Leuven, Belgium)



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Selective Laser Melting for Qualified Serial Production of Medical Devices

Philip Oris, Business Development Director Healthcare, SLM Solutions
Robin Bappert, Application Engineer Healthcare, SLM Solutions
philip.oris@slm-solutions.com robin.bappert@slmsolutions.com

22.07.2021



Closed-Loop Powder Handling Automated PSV

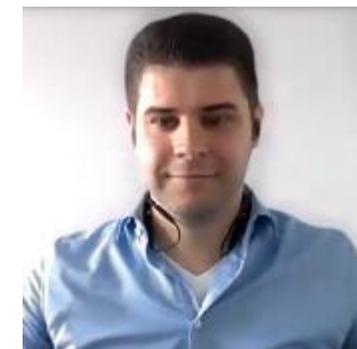
1. Powder loading into 90 liter tank
2. Powder exits the hopper into the sieve
3. Powder transported to the machine via pneumatic vacuum system
4. Sieved powder enters the machine then is deposited into the recoater
5. Used powder exits the machine
6. Reclaimed powder returns to the hopper for reusing

Safety
Door-integrated glare box eliminates operator exposure to open powder

Efficiency
Vacuum hose located in the build chamber delivers powder directly to the sieve

Quality
Minimized powder handling outside an inert atmosphere maintains powder quality

Efficiency
Reduced auxiliary times by eliminating manual



Robin Bappert, SLM Solutions GmbH (Lubeck, DE)



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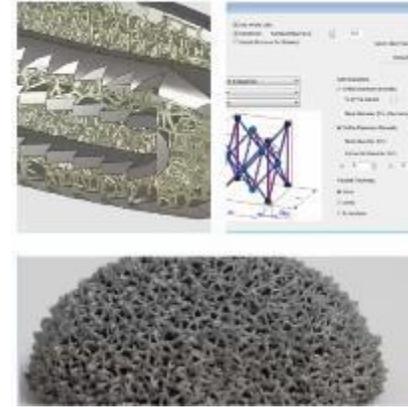
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3D SYSTEMS

3D printing in healthcare applications

Stefan Kapp

Business Development Manager EMEA, Healthcare

Stefan.Kapp@3dsystems.com

We are the leaders in enabling *additive manufacturing solutions for applications in growing markets that demand high reliability products.*



Stefan Kapp, 3D systems company (Baden, Germany)



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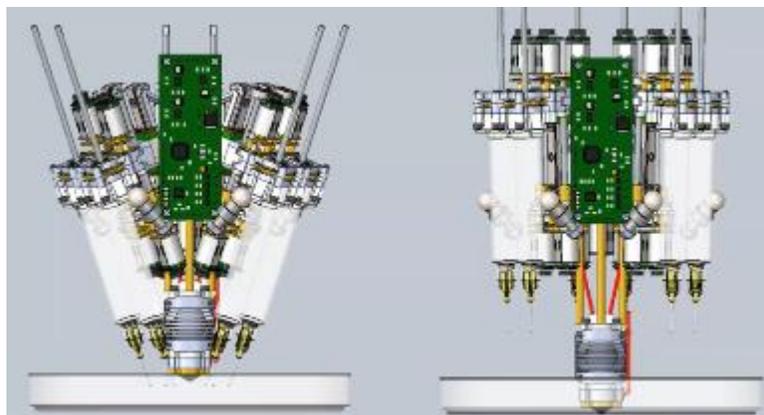
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 - 100% Programmable I/O
 - 100% Programmable I/O
- 7 inch touchscreen display**
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 - Multi-touch
 - Multi-touch
 - Multi-touch
 - Multi-touch
 - Multi-touch
 - Multi-touch
 - Multi-touch
- Double-walled polycarbonate door**
 - 100% Programmable I/O
 - 100% Programmable I/O
- Interchangeable Hybrid Extruder**
 - 100% Programmable I/O
 - 100% Programmable I/O
- Triple disposable printing system**
 - 100% Programmable I/O
 - 100% Programmable I/O
- Laser flow head**
 - 100% Programmable I/O
 - 100% Programmable I/O
- Integrated touchpad 100%**
 - 100% Programmable I/O
 - 100% Programmable I/O



Calin Brandabur – Symme 3D (Timisoara, RO)



Presentation of important companies in the field of 3D design and printing

BRIGHT project - Boosting the scientific excellence and innovation capacity of 3D printing methods in pandemic period

TECHNICAL UNIVERSITY OF CLUJ-NAPOCA ROMANIA

BRIGTH International Summer School on:

3D printing

for medical applications

19 - 30 JULY 2021

WHO can apply

Bachelor students (BSc)
Master students (MSc)
PhD students

SPECIALIZATIONS:
Manufacturing Engineering
Mechatronics & Robotics
Mechanical & Bio-Mechanical Engineering
Science of Materials
Physics & Chemistry
Medicine & Pharmacy

More details

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3D-BIOPLOTTER®

A 20 YEAR REVIEW: FROM BONE REGENERATION TO ORGAN PRINTING

Carlos Carvalho



Hyperelastic Bone

A Flexible 2 cm

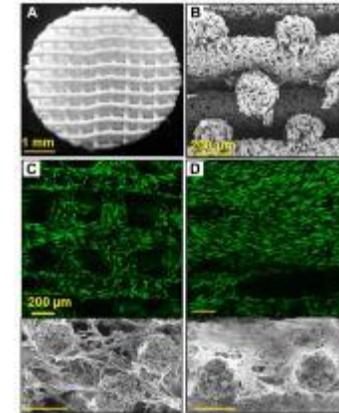
B Scalable 11 cm

C Surgical Stretch, Cut, Suture

D Complex 1 cm

E +GFP, -GFP, Infuse

Scan/design → 3D print → Use



Carlos Carvalho– envisionTEC (Gladbeck, DE)



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Bright Summer School

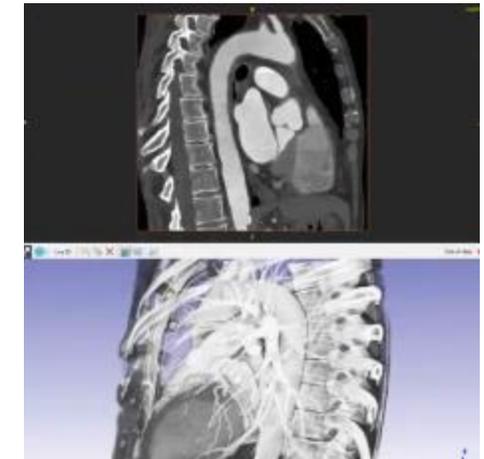


Arnaud Toutain
Healthcare Senior Manager EMEA



POC 3D Printing Workflow: Segmentation

How is it actually being done ?



Presentation of important companies in the field of 3D design and 3D printing

SPEE3D



HIGH SPEED, LOW COST 3D METAL PRINTING

Materials (powders)

- Aluminium
- Copper
- Brass
- Stress
- Tungsten

Compressed heated air

- No use of inert gases
- Low cost
- Reduced OHS risk

Robotic arm / part bed

- Robot 6 axis industrial robot
- Scalable for larger printers

Powder spray nozzle

- Rocket nozzle fires metal powder at supersonic speed
- fixed to the base of the machine

SPEE3D



Stefan Ritt, Spee3D (Lubeck, DE)

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Pre-operation aid

Remaining broke bone pieces are removed.
Standard titanium grid is shaped into the form of a bone to replace it.
Grid is mounted using titanium screws.
Thanks to the 3D printed model, grid could be shaped prior to operation.



Photos: www.orthoprint.pl

Krzysztof Kardach, Omni3D (Poznan, PL)



Presentation of important companies in the field of 3D design and 3D printing



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HP MultiJet Fusion – un salt în fabricarea digitala

Claudiu Birlogeanu
28 iulie 2021
claudiub@cadworks.ro





CADWORKS



Claudiu Birlogeanu (Craiova, RO)



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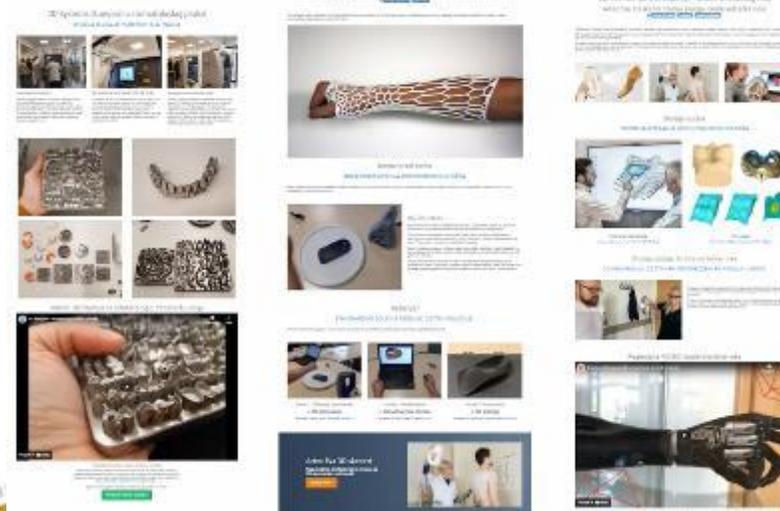
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Registration until 1st of July 2021

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BRIGHT International Summer School 2021

Affordable Professional 3D Solutions for Medical Applications

Miloš Momirović & Mladen Bogičević
Solfins 3D Company
Belgrade 2021



Milos Momirovic (Belgrade, SRB)



Presentation of important companies in the field of 3D design and 3D printing

bizzcom

BRIGHT project - Boosting the scientific excellence and innovation capacity of 3D printing methods in pandemic period

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Factory Digital Transformation

bizzcom
MORE THAN TECHNOLOGY



Factory planning

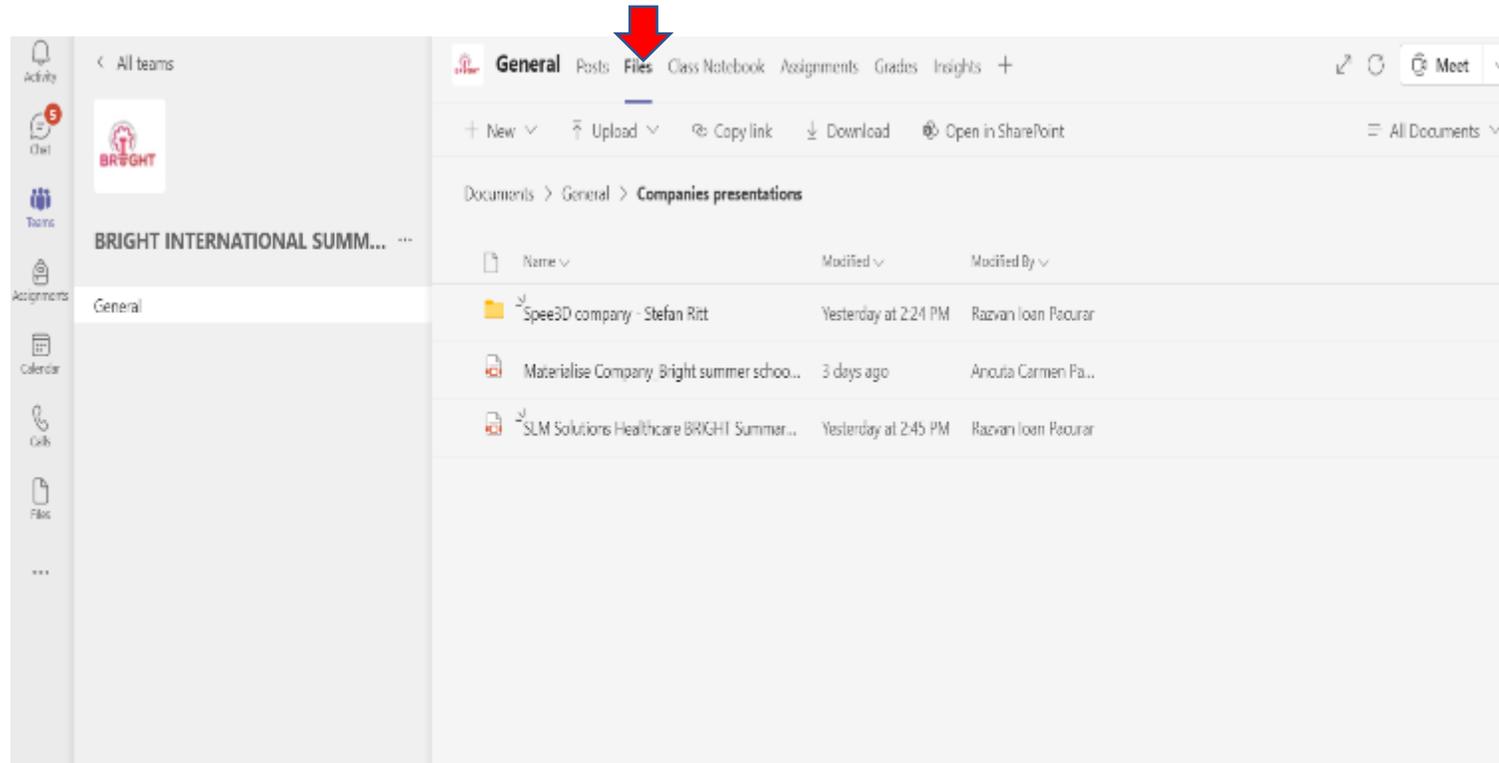
Environment

- Features
 - Digitalize existing hall
 - Create specific on demand
 - Visualize complex environment
- Benefits
 - Change dimensions in digital
 - Adjustments
 - Visualize customer specifics



Branislav Rabara
(BiZZCOM, SK)

Presentations of companies are available as well on Ms Teams



Establishing of strategic partnerships with the major players in the field of 3D printing for medicine and local / national / international institutions (City hall, clusters, etc) is also one very important goal of the BRIGTH project

Acknowledgment and many thanks to all companies involved at BRIGHT Summer School

BRIGHT project - Boosting the scientific excellence and innovation capacity of 3D printing methods in pandemic period

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PRIMĂRIA ȘI CONSILIUL LOCAL



TRANSILVANIA IT CLUSTER





BRIGHT project - Boosting the scientific excellence and innovation capacity of 3D printing methods in pandemic period



BRIGTH International Summer School on: **3D printing** for medical applications



19 - 30
JULY
2021

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INTERNATIONAL SUMMER SCHOOL

Final program Eastern European Time (EET)

Monday 19.07.2021

9:00 - 9:30 Opening and Welcome ceremony
Rector of the Technical University of Cluj-Napoca, Romania: Prof.dr.eng. Vasile Topa
City Hall Institution of Cluj-Napoca, Romania: **Nistor Lemi Boc**
Vice Rector with international relations of Technical University of Cluj-Napoca, Romania: Prof.dr.eng. Dan Măndru
Dean of Faculty of Industrial Engineering, Robotics and Production Management (TUCN): Prof.dr.eng. Corina Bîrleanu
Head of Manufacturing Engineering Department (TUCN): Assoc.Prof.dr.eng. Adrian Ift

9:30 - 10:30 BRIGHT project and Summer School presentation, Assoc.Prof.dr.eng. Răzvan Păcurar, TUCN, RO
Partners of BRIGHT project presentation.

10:30 - 10:45 25 years of succes in 3D printing at TUCN, Prof.dr.eng. Petru Berce, TUCN, RO
10:45 - 12:00 Applications of 3D printing in medicine developed within the National Centre of Innovative Manufacturing (TUCN), Prof.dr.eng. Nicolae Băc, TUCN, RO

12:00 - 13:00 Lunch break
13:00 - 14:00 CAD – Computer Aided Design (lecture), Prof.dr.eng. Filip Gorski, Univ. of Poznan, PL
14:00 - 14:30 Presentation of the medical parts to be developed and realized by 3D printing + launching of teams competition, Prof.dr.eng. Filip Gorski, Univ. of Poznan, PL
14:30 - 16:00 Dividing in groups. Groups socializing activity

Tuesday 20.07.2021

9:00 - 10:00 CAD laboratory part 1: selecting and working on medical parts prototypes design (groups)
10:00 - 11:00 Structural optimization: topology optimization, Prof.dr.eng. Nikola Vukovic, Univ. of Nis, SRB
11:00 - 11:30 Medical imaging and project based learning, Prof.dr.eng. Nikola Vukovic, Univ. of Nis, SRB
11:30 - 12:00 Computational Design and Digital Fabrication, Prof.dr.eng. Panagiotis Kyriakis, Univ. of Western Macedonia, Greece
12:00 - 13:00 Lunch break
13:00 - 14:00 3D scanning for medical applications, Lecturer dr.eng. Stefan Bod, TUCN, RO
14:00 - 15:00 Materials Science and Strength of Materials in medicine (lecture), Prof. dr. eng. Romigiusz Labudko, Univ. of Poznan, PL
15:00 - 16:00 Defining the specific types of samples to be realized by 3D printing and to be tested (seminar), Assoc.Prof.dr.eng.Sorin Comsa, TUCN, RO

Wednesday 21.07.2021

9:00 - 10:30 CAD laboratory part 2 : working on medical parts prototypes and designing of samples (groups)
10:30 - 11:00 Validation of the proposed solutions by CAD experts – feedback (seminar), Prof.dr.eng. Filip Gorski, Univ. of Poznan, PL
11:00 - 12:00 CAE - Computer Aided Engineering (lecture), Assoc.Prof.dr.eng. Răzvan Păcurar, TUCN, RO
12:00 - 13:00 Lunch break
13:00 - 14:30 CAE laboratory: working on medical parts prototypes and samples design (groups)
14:30 - 16:00 Presentation of Materialise company (Leuven, Belgium): CAE / VR / 3D printing, Diana Skopina

Thursday 22.07.2021

9:00 - 10:00 Validation of the proposed solutions by CAE experts – feedback (seminar), Assoc.Prof.dr.eng. Sorin Comsa, TUCN, RO
10:00 - 11:00 3D printing and Rapid Tooling (lecture), Assoc.Prof.dr.eng. Răzvan Păcurar, TUCN, RO
11:00 - 12:00 Presentation of SLM Solutions company (Lubeck, Germany), Robin Bappert
12:00 - 13:00 Lunch break
13:00 - 14:00 3D printing laboratory 1: preparing the medical parts and samples to be printed (groups)
14:00 - 15:00 Presentation of Spoo3D company (Lübeck, Germany): Cold spray 3D metal printing, a new and fast technology for independent metal manufacturing, Stefan Ritt
15:00 - 16:00 Presentation of Omni 3D company (Poznan, Poland), Mr. Krzysztof Kardach - Chief Technologist Omni3D

Friday 23.07.2021

9:00 - 10:00 3D printing experience – feedback of the experts (workshop / seminar), Assoc.Prof.dr.eng. Răzvan Păcurar, TUCN, RO
10:00 - 11:00 3D printing laboratory 2: printing of the improved variants of medical parts and samples (groups)
11:00 - 12:00 Process optimization and software control (lecture), Prof.dr.eng. Nikola Vukovic, Univ. of Nis, SRB
12:00 - 13:00 Lunch break
13:00 - 13:30 Innovative strategies for medical applications, **Oana Bucatu** (City Hall Institution of Cluj Napoca, Romania)
13:30 - 14:00 Conclusions and round table discussion with all participants at the end of the 1st week
14:00 - 16:00 Virtual tour of Transylvania region

INTERNATIONAL SUMMER SCHOOL

Final program Eastern European Time (EET)

Monday 26.07.2021

9:00 - 9:30 Welcome introduction speech about the aims and objective of week no. 2 - Assoc.Prof.dr.eng. Răzvan Păcurar, TUCN, RO
9:30 - 10:30 3D printing experience – first feedback on behalf of the 3D printing experts (seminar), Assoc.Prof.dr.eng. Răzvan Păcurar, TUCN, RO
10:30 - 11:00 Experimental and computational strength analysis in biomedical engineering, Prof.dr.eng. Cristian Dutescu, TUCN, RO
11:00 - 12:00 Morpho-structural analysis of structures made of biomaterials, Prof.dr.eng. Ovidiu Nemes, TUCN, RO
& Assoc. Prof. dr. eng. Diana GMA, Polytechnic University of Bucharest, RO
12:00 - 13:00 Lunch break
13:00 - 14:00 3D printed microfluidic systems for biomedical applications, Prof.dr.eng. Popa Gălin, TUCN, RO
14:00 - 15:00 Mechanical testing of samples realized by 3D printing processes and SEM analyses: Mechanical testing of orthosis, PhD.eng. Radosław Wichrowski, Univ. of Poznan, PL
Mechanical testing of elastoid sampler, MSc.eng. Filip Sathornowski, Univ. of Poznan, PL
Preparation and SEM macroscopic examinations, MSc.eng. Maria Ratajszok, Univ. of Poznan, PL
15:00 - 16:00 Presentation of 3D systems company (Baden, Germany), Business Development Manager Healthcare, Stefan Kapp, DE

Tuesday 27.07.2021

9:00 - 10:00 Validation and interpretation of the results by mechanical and SEM testing experts – feedback (seminar), Prof.dr.eng.Radușan Leabăr PhD.eng. Radosław Wichrowski, MSc.eng. Filip Sathornowski, MSc.eng. Maria Ratajszok & Lecturer dr. eng. Cristian Vălu
10:00 - 11:00 BRIGHT - preparing the final presentations by students (groups)
11:00 - 12:00 The engineering behind 3D printing of a human pancreas, Călin Brăndăuș, Symma 3D company, Romania
12:00 - 13:00 Lunch break
13:00 - 14:00 Presentation of omisionTEC Bio-printing company (Gladbeck, Germany), diplomat. Carlos Carvalho, DE
14:00 - 15:00 Presentation of Strateos company: Anatomically realistic 3D printed models from Strateos, Mr. Amadeu Teubin, Senior Manager Healthcare EMEA Strateos (Baden, Germany) and Daniel Floric (Nucleonics, Romania)
15:00 - 16:00 Virtual reality laboratory for medical applications, Prof.dr.eng. Nicos Manic, Virginia Commonwealth University, USA

Wednesday 28.07.2021

9:00 - 10:00 Flexible manufacturing systems in medical applications (lecture), Prof.dr.eng. Peter Kasal, STU, SK
10:00 - 11:00 Using and Integrating CAD / CAM solutions in medicine manufacturing, Prof.dr.eng. Peter Kasal, STU, SK
11:00 - 12:00 Biomedical applications and challenges, Prof.dr.eng. Mirsad Trajković, Univ. of Nis, SRB
12:00 - 13:00 Lunch break
13:00 - 14:00 Innovative Robots for Medical Applications: New Trends and Challenges, Prof.dr.eng. Dana Pașă, TUCN, RO
14:00 - 15:00 The applications of 3D rapid prototyping technologies in cranio-maxillofacial surgery, dr. Hanyu Ruan, Univ. of Medicine and Pharmacy, RO
15:00 - 16:00 Presentation of CAD Works company (Iraiova, Romania): SolidWorks, SolidCAM & 3D Printing, Dumitru Tucan, RO

Thursday 29.07.2021

9:00 - 10:00 Medical engineering standards and tests (lecture), Assoc.Prof.dr.eng. Sven Maric, UNIPU, HR
10:00 - 10:30 The use of VR and AR for medical applications, Assoc. Prof. dr. eng. Sven Maric, UNIPU, HR
Ciprian Onofre, TUCN, RO. Lecturer dr. eng. Ali Pasa, TUCN, RO
10:30 - 11:00 Mesh applications for VR, Assoc. Prof. dr. eng. Dan Sergiu Stan, TUCN, RO
12:00 - 13:00 Lunch break
13:00 - 14:00 Presentation of SoftIn 3D company (Belgrade, Serbia): Affordable professional 3D solutions for Medical applications, Ilija Mijatović & Mladen Bognerić, SRB
14:00 - 14:30 Presentation of VR / AR applications developed by BIZZCOM company (Bužany, Slovakia), Branislav Rabara, SK
14:30 - 15:00 BRIGHT evaluation of customers
15:00 - 16:00 BRIGHT last conclusions. BRIGHT answering related to the test questions. Fulfilling of BRIGHT final questionnaire (groups)

Friday 30.07.2021

9:00 - 10:15 Presenting of the 3D printed parts and reports related to the research performed by the groups (seminar), Prof.dr.eng. Filip Gorski, Univ. of Poznan, PL
10:15 - 10:30 BRIGHT winning awards - prof. dr. eng. Filip Gorski, Univ. of Poznan, PL + Associate Prof. dr. eng. Răzvan Păcurar, TUCN, RO
10:30 - 11:00 Presenting of developing common research projects focused on specific topics related to medicine – Development Agency of The North-West Region of Romania (part 1), Clăudia Olaru, Department of Intelligent Specialization, RO
11:00 - 11:30 Presenting of developing common research projects focused on specific topics related to medicine – Development Agency of The North-West Region of Romania (part 2), Lavinia Chis, Department of INNO Platform, RO
11:30 - 12:00 Presenting and opportunities of joining research projects, Bianca Muntean, Transylvania IT Cluster, RO
12:00 - 12:15 Presenting and opportunities of joining research projects at local and regional level, Enikő Botzson, City Hall Institution of Cluj-Napoca, RO
12:15 - 13:00 Round table with medical and industrial partners of BRIGHT. Defining of potential common topics for future collaboration. Defining of possible diploma projects - Assoc.Prof.dr.eng. Dan Sergiu Stan, TUCN, RO
13:00 - 14:00 Lunch break
14:00 - 14:30 Presenting of disseminating opportunities MDPI Romania - HR Manager Inna Pele and Ms. Anca Banu, RO
14:30 - 15:00 Presenting of publishing opportunities & launching of new book, Daniela Duric, InTech Publishing House of Rijeka, HR
15:00 - 16:00 BRIGTH closing ceremony. Future perspectives & activities of the BRIGTH project – Assoc. Prof. dr. eng. Răzvan Păcurar, TUCN, RO

Highly intense program but with many achieved goals

<https://bright-project.eu/>



for the BRIGTH project

Socializing activities – really nice posters made by the students in the first day



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Socializing activities – establishing of names for the group Teams – students were really creative



University of Niš
Faculty of Mechanical Engineering

BrainStormers
Jovan Arandelović
Nikola Despenić



Poltaters

Group 14 :)
Great land of potatoes



Potatoes with quark cheese

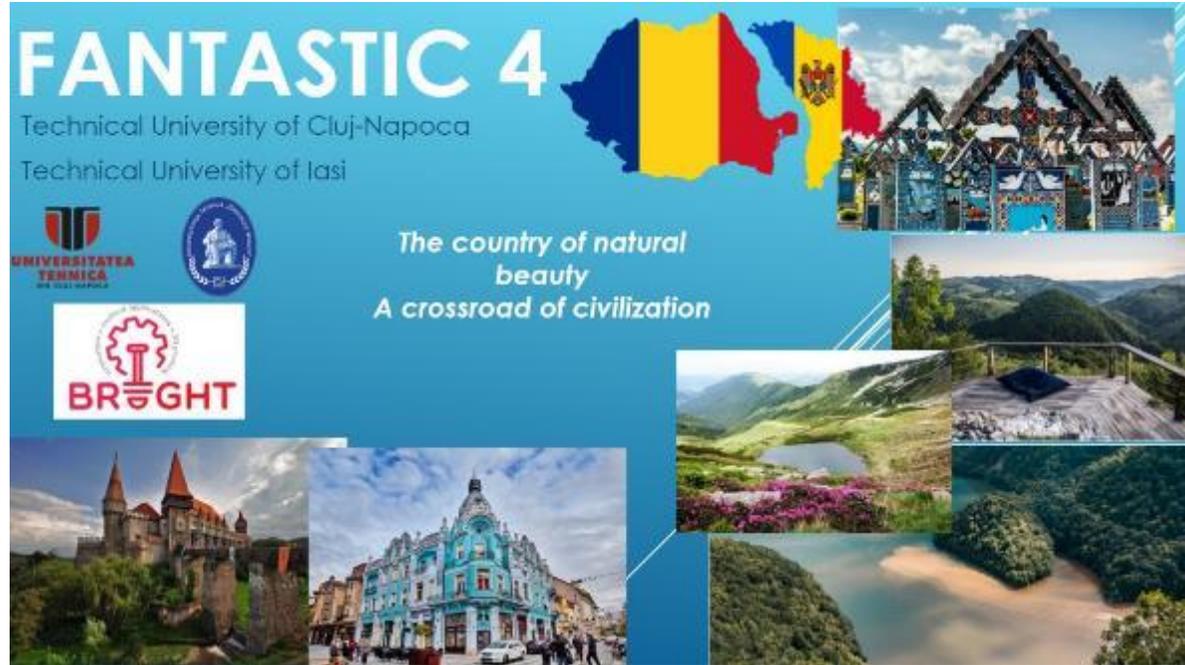


We come from Poland and we study at the University of Technology in Poznań:)



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One of the main practical challenge of BRIGHT summer school 2021 edition products to be re-designed by the students

PRODUCTS

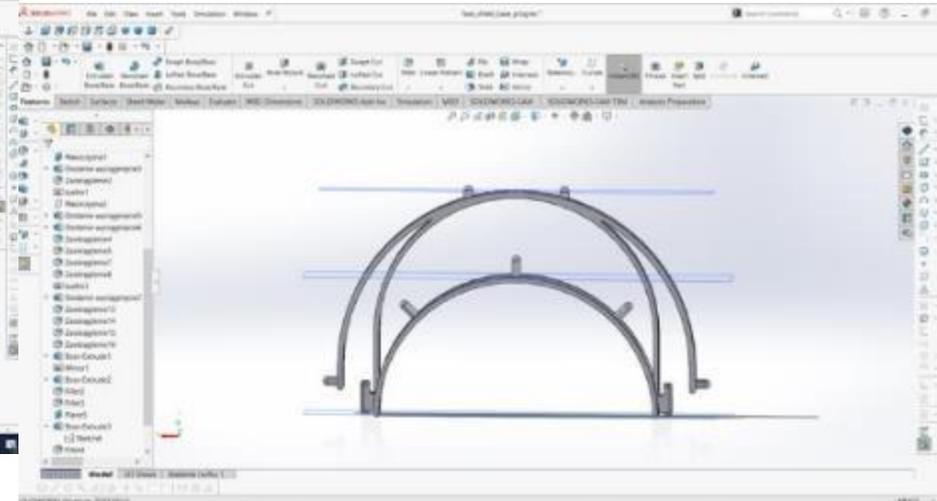
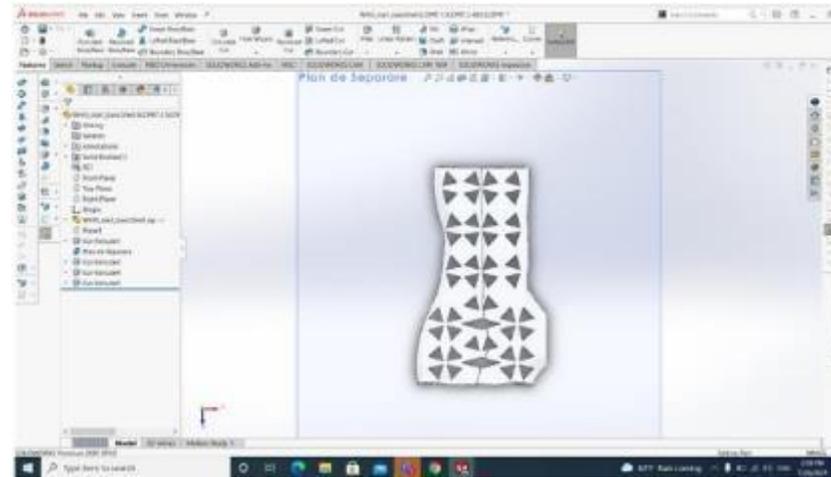
- 1) face shield
- 2) mechanical hand prosthesis
- 3) openwork wrist hand orthosis



Launching of products to be redesigned by the students - Prof. Filip Gorski, Univ of Poznan, PL

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Working progress made by the students – CAD design



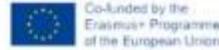
Designing of the products + Feedbacks from the CAD experts

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Working progress made by the students – CAE design



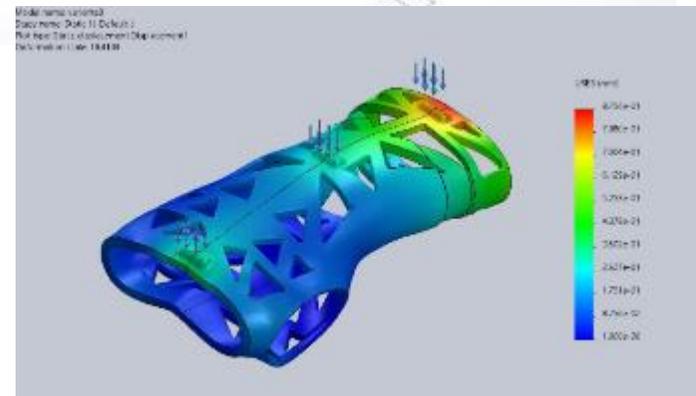
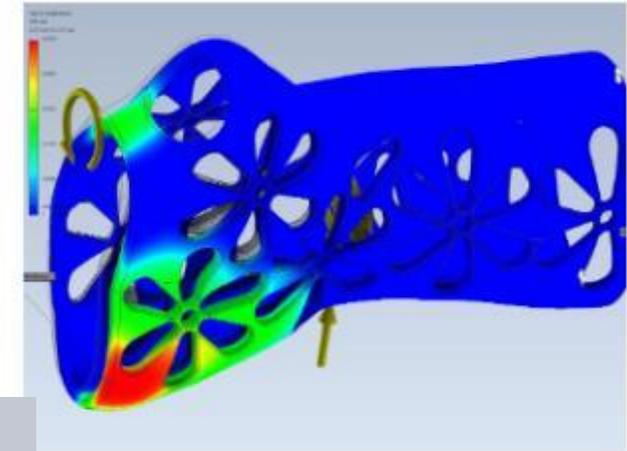
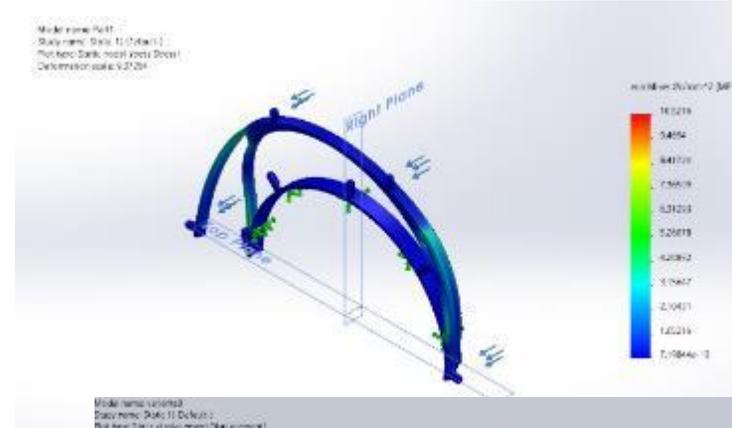
BRIGHT project - Boosting the scientific excellence and innovation capacity of 3D printing methods in pandemic period



Co-funded by the Erasmus+ Programme of the European Union

Defining the types of 3D-printed samples to be tested
- Seminar -

Dan-Sorin COMȘA, TU Cluj-Napoca, Romania
Tuesday, 20th July 2021, 15:00-16:00 EET



Feedbacks from CAE experts

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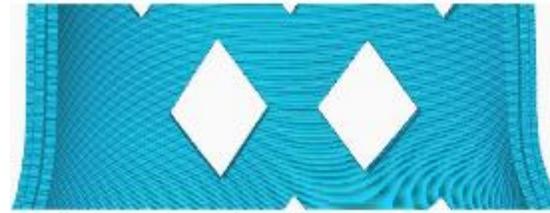
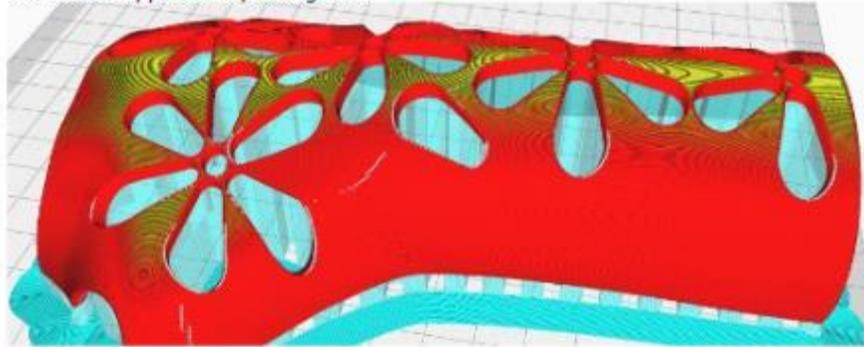


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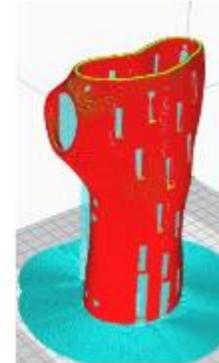
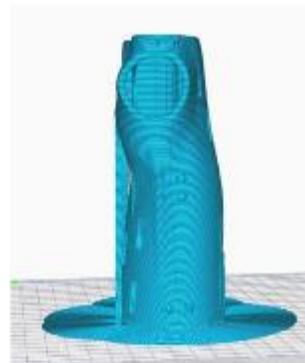
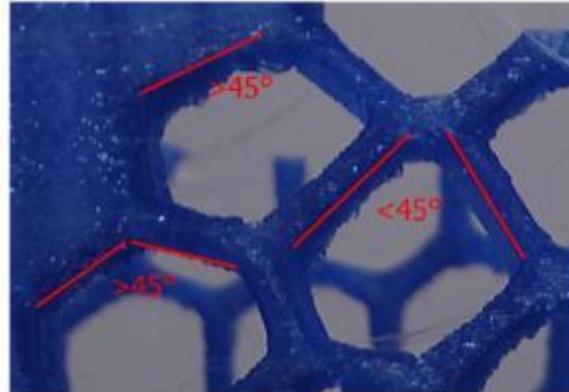
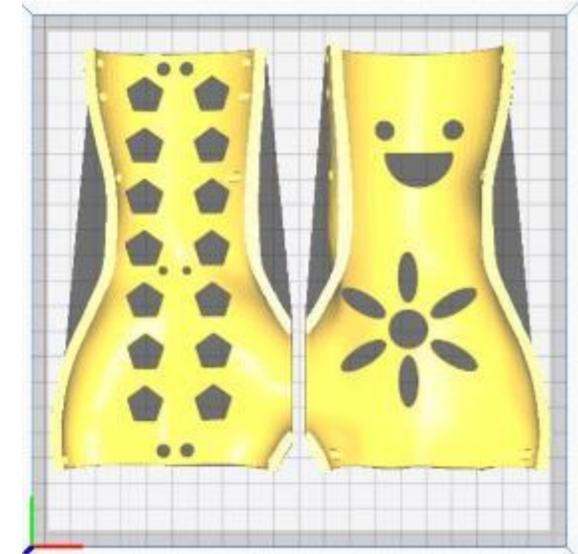


Working progress made by the students – 3D printing

Too much support and printing time.



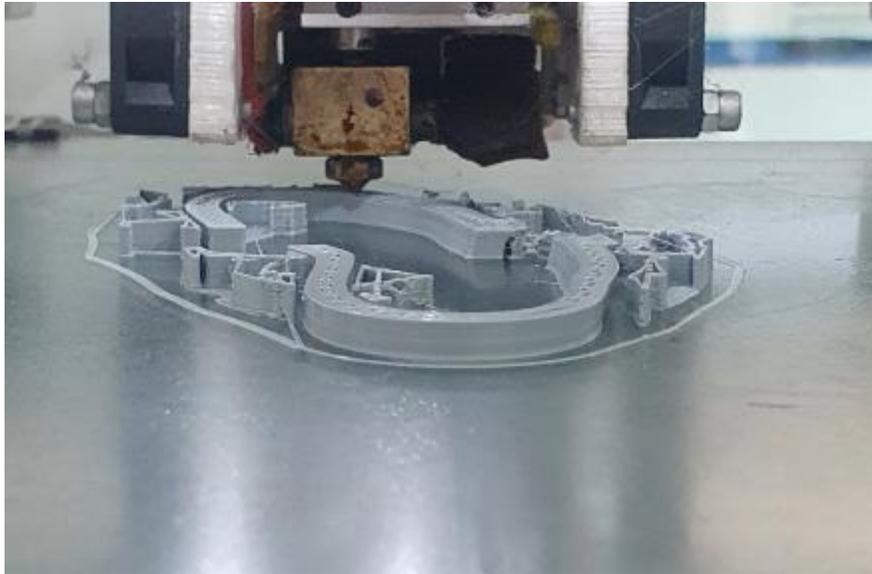
Rounding the sharp corner!



Feedbacks from 3D printing experts

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1st week progress – 3D printing



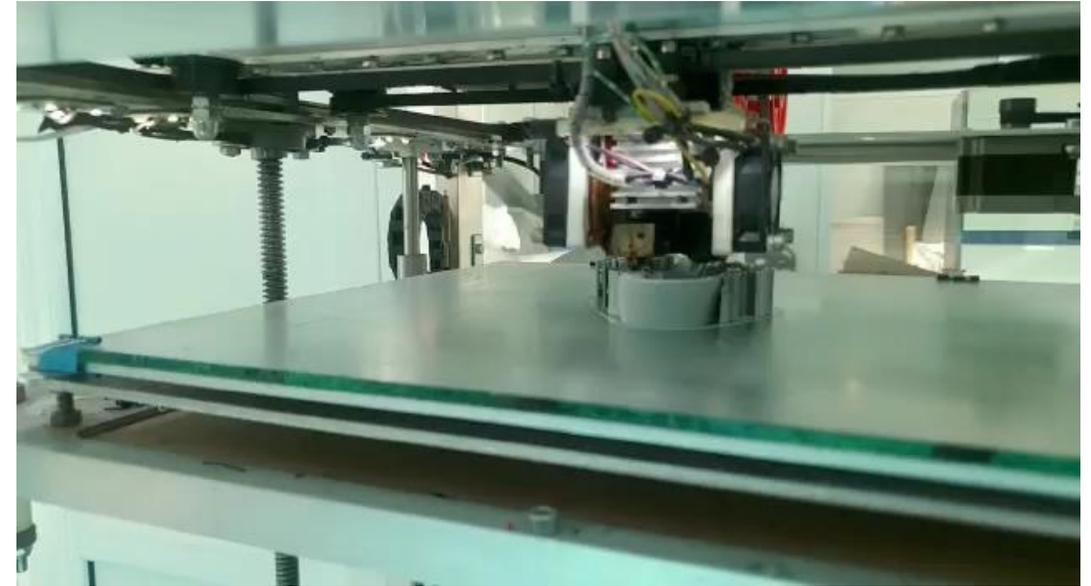
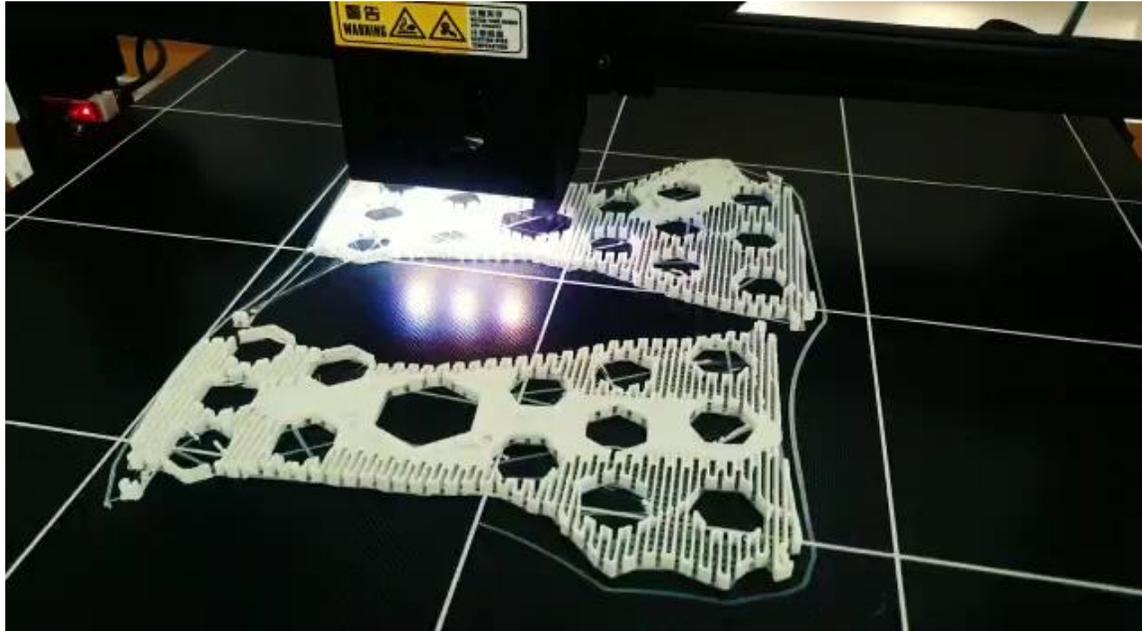
The alignment system is perfect
 BUT
 The wall is very thin



Feedbacks from 3D printing experts

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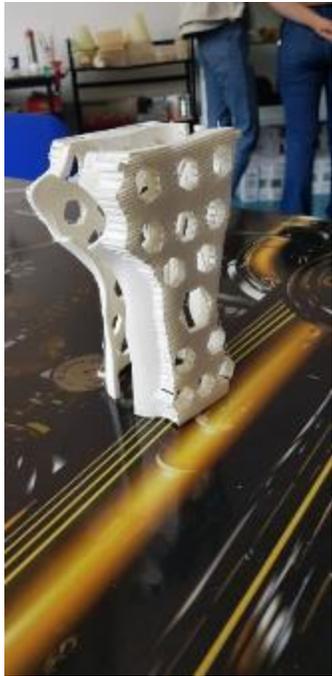
1st week progress – 3D printing



Feedbacks from 3D printing experts

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Final surprise of the ending of 1st week (TUCN, RO)



3D printing parts coming to life

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Final surprise of the ending of 1st week (TUCN, RO) – laboratory onsite visit



Students coming back to normal activities (onsite)

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Final surprise of the ending of 1st week (TUCN, RO) – laboratory onsite visit



Students coming back to normal activities (onsite)

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Final surprise of the ending of 1st week (TUCN, RO) – laboratory onsite visit

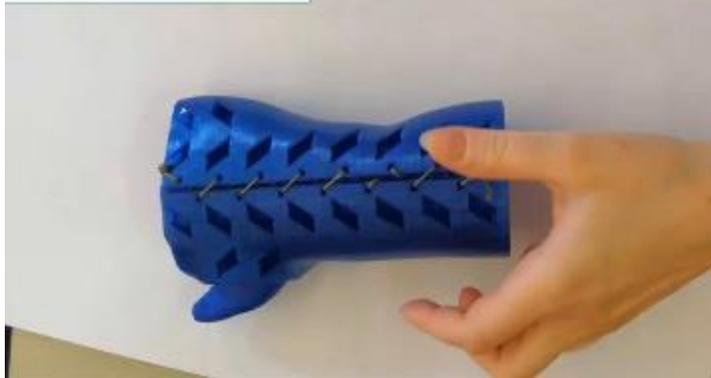


Students coming back to normal activities (onsite)

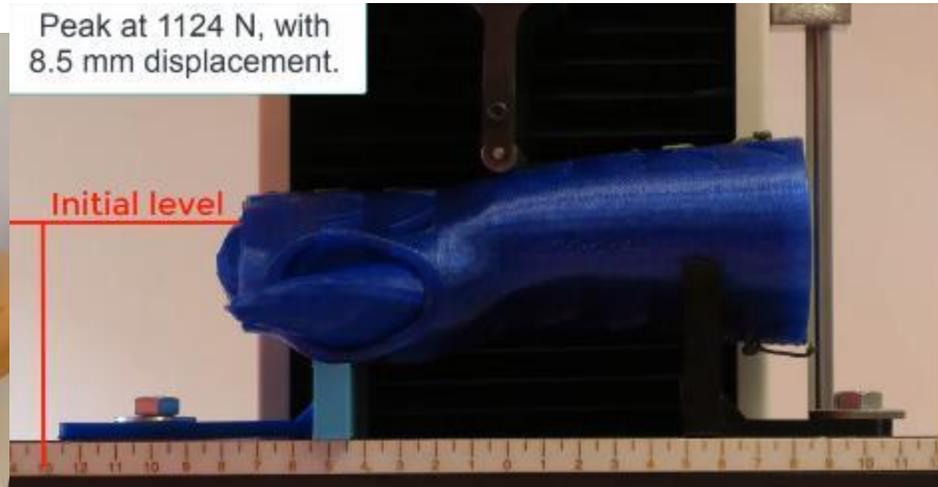
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Working progress made by the students – Mechanical testing

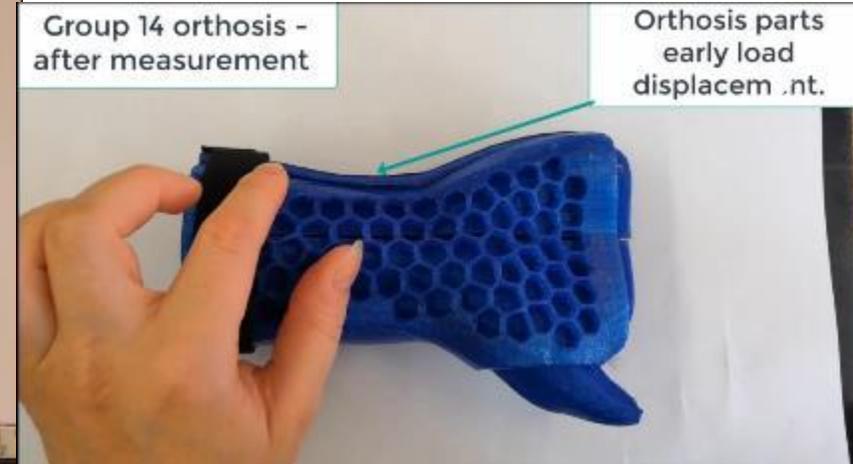
Group 13 orthosis - before measurement



Peak at 1124 N, with 8.5 mm displacement.



Group 14 orthosis - after measurement



Professional Feedback from Mechanical testing experts (Radoslaw Wichniarek, Sorin Comsa and Cristian Vilau)

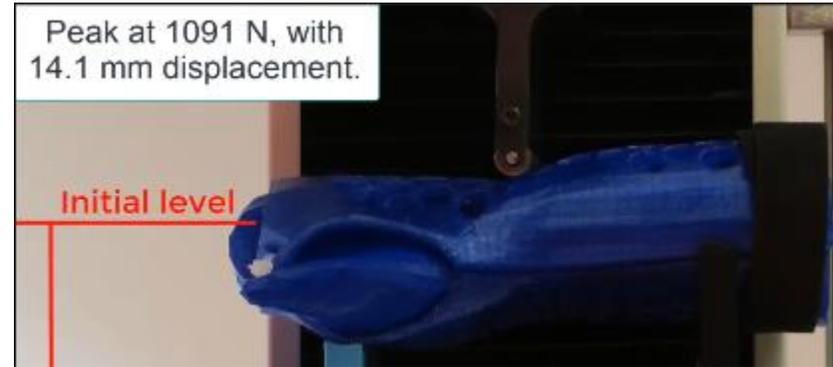
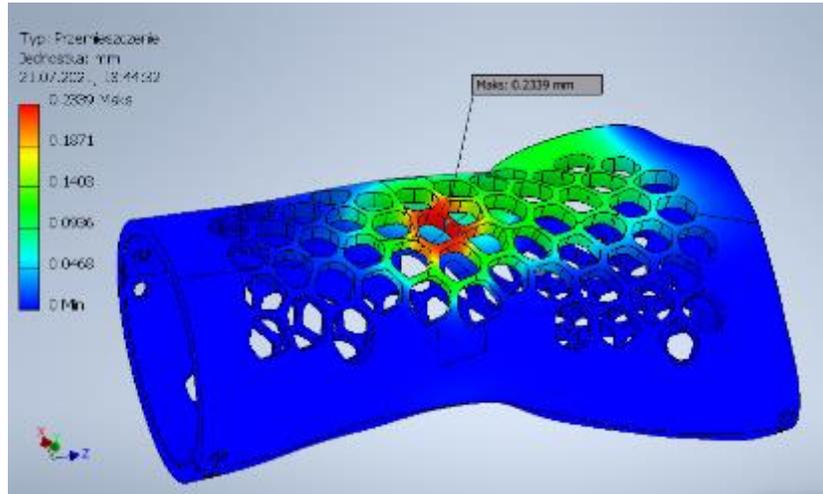
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Final Presentations made by the students



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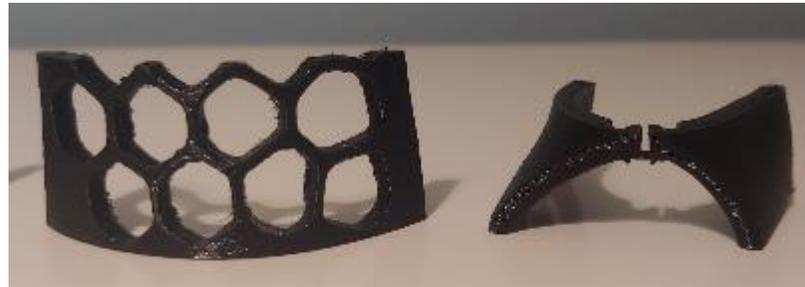
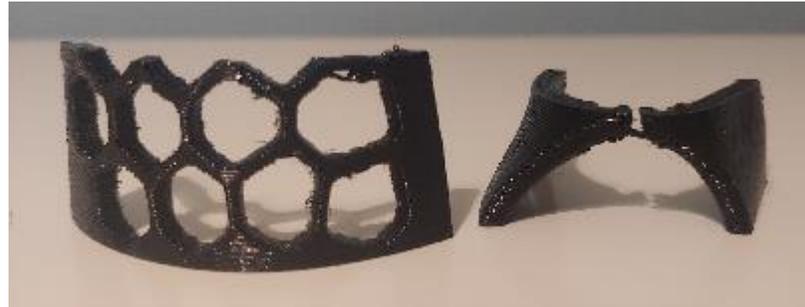
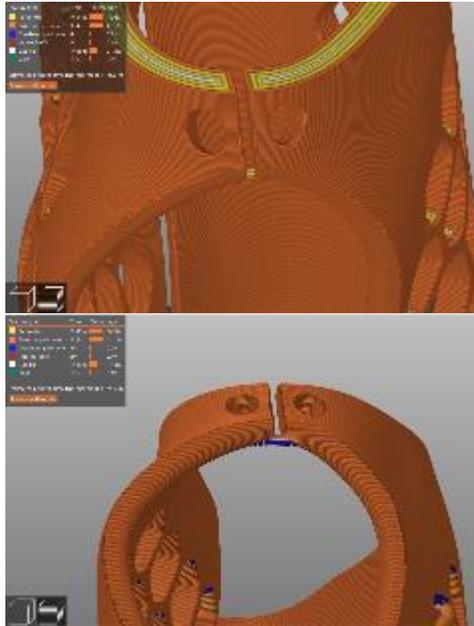
Final Presentations made by the students



Orthosis name	Actual material consumption (including supports) [g]	Displacement at 300 N of load [mm]	Material consumption for each mm of deformation [g]
Group 14	90	6,4	14,1

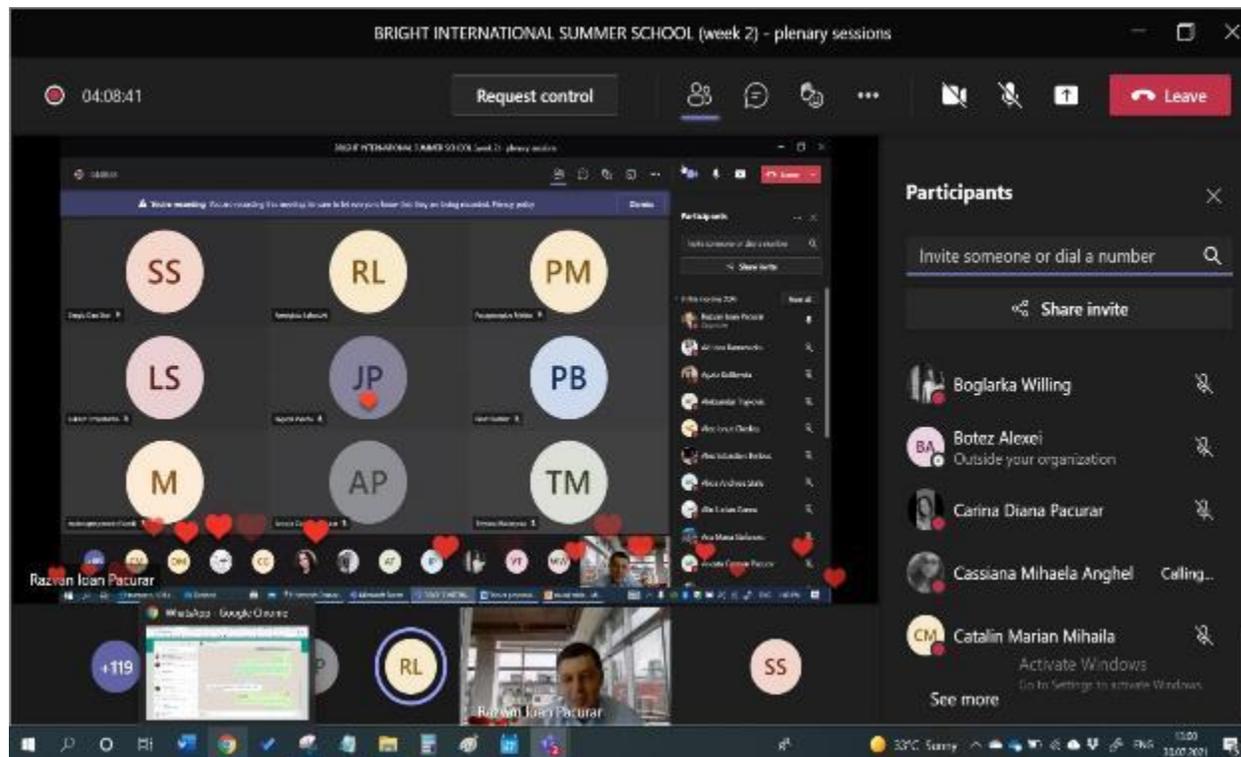
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Final Presentations made by the students



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Feedbacks on behalf of students to presentations made by the BRIGTH students



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Hall of fame - BRIGTest star students of 2021 International Summer School edition

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BRIGHT project - Boosting the scientific excellence and innovation capacity of 3D printing methods in pandemic period



Co-funded by the Erasmus+ Programme of the European Union

Award ceremony of BRIGHT International Summer School 2021 edition



BRIGHT project - Boosting the scientific excellence and innovation capacity of 3D printing methods in pandemic period



Co-funded by the Erasmus+ Programme of the European Union



Award Ceremony

Taking into account in particular the evaluation following criteria:

- Complexeness of work*
- Quality of the presentation*
- Innovativeness*



AWARD CEREMONY



Remigiusz ŁABUDZKI

POZNAN UNIVERSITY OF TECHNOLOGY
POLAND

Professors decided to distinguish 6 teams of students:

- 3D minds (Poland)**
- Engineers of the future (Romania)**
- Zenta Mendical (Romania)**
- Cyber makers (Ukraine + Slovakia)**
- Brainstormers (Serbia+Slovakia)**
- TRIO (Ukraine+Moldova+Romania)**

and the **WINNER** is....

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Award ceremony of BRIGHT International Summer School 2021 edition



Award Ceremony

POLTATERS team members:



Award Ceremony

The prize is a 3D logo printed by Rapid Prototyping technique



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BSc /MSc/PhD thesis directions organized in mentorate / co-mentorate variant established (still opened to be completed)



1. Automation of the design of the openwork for the WHO orthosis in the selected CAD system.
2. Virtual prosthesis configurator of the Robohand type.
3. Prototyping of a child upper-limb prosthesis for cycling.
4. Prototyping of a device for measuring the strength of the adductors of the hand stump.
5. Optimization of the FFF process from the point of view of the production of orthoses.

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Motivating messages at the end of the presentations made by students

Fantastic 4 members:



Let's keep going with development of 3D printing for medical application for a brighter future ;)

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Motivating messages at the end of the presentations made by students

**“Success is not final, failure is not fatal!”
Thank you!**



Group 5,
“Engineers of the Future”,
Romania



laurum Diana-Otilia
Ilie Raul-Emanuel
Nemanu Buzdea-Iustina
Rapeanu Ioana-Viorica

Rotaru Igor
Tamas Paula-Irina
Vaida Ioana-Alexandra
Vasilachi Ionut
Jeno Tibor Albert

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Motivating messages at the end of the presentations made by students



These past 2 BRIGTH weeks were a loving experience and us, the group M3D printers, want to thank you for making it possible!
Hope to see you next year!



Mircea Septimiu Hurducaci



Paul Catalin Muresan



Bogdan Vlad Morariu



Cristian Vitau
Coordinator



Nicoleta Putintica



Mihail Naherniac



Sergiu Dan Miskoczi



Doma Noemi

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Motivating messages at the end of the presentations made by students



East Balkan Design



Monica Rau



Vasile Portius



Ionut Peter



Robert Suflarszky



Pacnejer Andrei



Raluca Rus



Levente Orban



Mihai Pandrea



Ilinca Rus



Prof. Emilia Sabau

**Innovate, so our future can be
BRIGTH-er!**

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Motivating messages at the end of the presentations made by students

CREATING LAYER BY LAYER



GROUP 10



Teodora Sburlea



Roxana Ioana Tudor



Andreea Maria Tomsea



Vlad Mihai Olar

ZentaMedical



Boglarka Willing



Tudor Cazacu

THE BEST IDEAS ARE ALWAYS BORN FROM TEAM-WORK!

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Motivating messages at the end of the presentations made by students



Tetyana 



Bogdan 

Trio



Zinaida 



Cassiana 



Stefan 

Thank you for your attention!

Thank you for your support and your valuable feedback!

We had lots of fun and hope to see you next year!

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Motivating messages at the end of the presentations made by students

If you brainstorm you will have a bright future!



Brainstormers



Serbia & Slovakia



Aleksandar Trajković



Marko Perić



Nikola Despenić



Adriana Kamenszka



Dušan Sojiljković



Damjan Rangelov



Jovan Arandelović

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Motivating messages at the end of the presentations made by students

Polishing design



Poltaters

Group no. 14



"Only the one who does not make mistakes is the one who does nothing."



Big thank you to BRIGTH team for a wonderful opportunity to work with experts!

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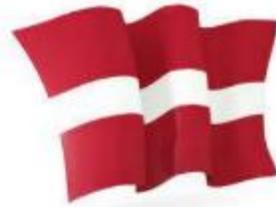
Motivating messages at the end of the presentations made by students



Design without borders

We all 3D print in the same language. You can do it do!!

Thank you!!



5G-eeks

Paper or Plastic?

Quattro



5G-eeks



Athanasia Papadopoulou



Anastasia Moschou



Matina Papageorgiou



Lazaros Firtikiadis



Iasonas Chrysostomos Vasileiou



Paper or Plastic?



Juraj Vivoda
Mateo Gregorovič
Anamarija Jurcan



Quattro



Viktorija Šipilova



Haralds Karlis Sternbergs



Miks Biezbārdis



Oksana Stepanova

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Motivating messages at the end of the presentations made by students



Cyber Makers from Ukraine

We thanks to all professors, organizers and companies.

It was really Bright Summer School



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BRIGHT professors from the Board of the University, the Faculty and Department of Manufacturing Engineering (Technical University of Cluj-Napoca, RO)



Rector, prof.dr.eng. Vasile TOPA



Vice rector with International relations, prof. dr.eng. Dan Mandru



Dean of the Faculty of Industrial Engineering, Robotics and Production Management, prof.dr.eng. Corina Birleanu



Head of Department of Manufacturing Engineering, assoc. prof.dr.eng. Adrian Trif



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Acknowledgments

Technical assistance for the entire summer school & realizing / updating of BRIGTH web page:
Alexandru Ianosi, TUCN, RO



BRIGTH concept logo

Lea Grguric, Delnice, HR



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BRIGTH project - Boosting the scientific excellence and innovation capacity of 3D printing methods in pandemic period



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CAD laboratory 1 and 2

CAD experts:

- SolidWorks:** Moldovan Catalin (group 1 + group 2)
Comsa Sorin (group 3 + group 4)
Mihai Ciupan (group 5 + group 10)
Vilau Cristian (group 6 + group 7)
Emilia Sabau (group 8 + group 9)
Florin Popister (group 16)
- Autodesk Inventor:** Filip Gorski (group 12 + group13 + group 14)
- CAD Slovakia:** Peter Kostal (group 11 + group 15)
- Fusion 360** – Ivan + Matea (group 17 + group 18)

Acknowledgments



CAE experts:

- SolidWorks** Moldovan Catalin (group 1 + group 2)
- Simulation** Comsa Sorin (group 3 + group 4)
- ANSYS:** Mihai Ciupan (group 5 + group 10)
Vilau Cristian (group 6 + group 7)
Emilia Sabau (group 8 + group 9)
Florin Popister (group 16)
Nikola Korunovic (group 11 + group 15)
- Autodesk:** Filip Gorski (group 12 + group13 + group 14)
Ivan + Matea (group 17 + group 18)

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BRIGHT project - Boosting the scientific excellence and innovation capacity of 3D printing methods in pandemic period



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3D Printing laboratory 1 & 2

Acknowledgments



Mechanical and SEM testing

3DP experts

Moldovan Catalin (group 1 + group 2 + group 3)
Vilau Cristian (group 6 + group 7 + group 8)
Eugen Gutiu (group 4 + group 5 + group 10)
Aleksandar Mltenovic (group 11 + group 15 + group 16 + group (17/18 – joined group)
Radoslaw WICHNIAREK (group 9 + group 12 + group 13 + group 14) –

Dr Eng Radoslaw WICHNIAREK, Poznan, PL
MSc. Eng. Filip Sarbinowski, Poznan, PL
MSc. Eng. Maria Ratajczak, Poznan, PL
Lecturer dr. eng. Vilau Cristian, TUCN, RO
Associate prof.dr.eng. Sorin Comsa, TUCN, RO
Prof.dr.eng. Remigiuzs Labudski, TUCN, RO

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BRIGHT responsible of the groups

Cristina Borzan – assistant chief manager - TUCN, RO



Ancuta Pacurar, TUCN, RO
 Sergiu Dan Stan, TUCN, RO
 Catalin Moldovan, TUCN, RO
 Alexandru Ianosi, TUCN, RO
 Alexandru Oarcea, TUCN, RO
 Victor Cobilean, TUCN, RO
 Mihai Ciupan, TUCN, RO
 Alin Plesa, TUCN, RO
 Vilau Cristian, TUCN, RO
 Emilia Sabau, TUCN, RO



Trifan Vlad, TUCN, RO
 Florin Popister, TUCN, RO
 Erika Hruskova, STU, SK
 Miriam Matusova, STU, SK
 Martin Necpal, STU, SK
 Magdalena Zukowska, Poznan, PL
 Krzysztof Lukaszewski, Poznan, PL
 Ivan Veljovic, Istria, HR
 Matea Grdic, Istria, HR

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BRIGHT professors that have delivered presentations about IO1 course modules



Prof.dr.eng. Filip Gorski (Univ of Poznan, PL) - CAD

Assoc. prof. Razvan Pacurar (TUCN, RO) – CAE & 3D printing / Rapid Tooling methods for medical applications

Prof. Remigiuzs Labudski (Univ of Poznan, PL) - Materials Science and Strength of Materials

Associate Prof. Nikola Vitkovic (Univ. of Nis, SRB) - Process optimization and software control

Prof. Peter Kostal (STU Bratislava, SK) - Flexible manufacturing systems in medical applications

Associate Prof. Sven Maricic (Univ. of Juraj Dobrila, Istria, HR) – Medical standards and tests

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BRIGHT professors that have delivered presentations related to summer school topic

Prof. Petru Berce, TUCN, RO
Prof Nicolae Balc, TUCN, RO
Prof. Cristian Dudescu, TUCN, RO
Prof. Popa Catalin, TUCN, RO
Prof. Doina Pisla, TUCN, RO
Associate prof. Sorin Comsa, TUCN, RO
Associate prof. Dan Sergiu Stan, TUCN, RO
Lecturer Stefan Bodi, TUCN, RO
Lecturer Alin Plesa, TUCN, RO
Lecturer Florin Popister, TUCN, RO



Researcher Alexandru Oarcea, TUCN, RO
Researcher Victor Coblinean, TUCN, RO
Prof.dr. Horatiu Rotaru, Univ of Medicine, Cluj, RO
Associate prof. Diana Baila, Polytechnic Univ of Bucharest, RO
Prof. Radoslaw Wichniarek, Univ. of Poznan, PL
Msc. Eng. Filip Sarbinovski, Univ. of Poznan, PL
Msc. Eng. Maria Ratajczak, Univ. of Poznan, PL
Prof. Nikola Korunovic, Univ of Nis, SRB
Prof. Panagiotis Kyriakis, Univ of W. Macedonia, GR
Prof. Miroslav Trajanovic, Univ. of Nis, SRB
Prof. Milos Manic, Virginia Commonwealth University, USA

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Representatives on behalf of the companies that have made presentations at this edition of BRIGTH International Summer School (2021)



Diana Skopina (Materialise)

Carlos Carvalho (envisionTEC)

Cristian Foral (NU Technologies)

Robin Bappert (SLM Solutions)

Milos Momirovic (Solfins)

Claudiu Birlogeanu (CAD Works)

Stefan Ritt (Spee3D)

Bransilav Rabara (Bizzcom)

Ciprian Onetiu (3DDesign)

Stefan Kapp (3D Systems)

Krzysztof Kardach (Omni 3D)

Narcis Barbarii (PRO-4DFORM)

Arnaud Totain (Stratasys)

Calin Brandabur (Symme 3D)

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Representatives on behalf of the City hall institution, SMEs, R & D sector

City hall representatives (Cluj-Napoca)

Mayor of Cluj-Napoca city, Emil Boc

Emilia Botezan

Oana Buzatu



SMEs representatives, clusters and Developing Agencies

Cristian Otgon (North West Developing Agency, RO)

Lavinia Chis (North West Developing Agency, RO)

Bianca Muntean (Transilvania IT cluster)

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Representatives of disseminating Publishing Houses

MDPI Romania

HR Manager Irina Pelin

Ms. Anca Banu



IntechOpen, UK

Head of Publishing operations, Danijela Duric

Ms. Mirta Benvin

Ms. Milica Mataja-Mafrici

Ms. Milica Aberer



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BRIGT consortium partners (coordinators)



Assoc.prof.dr.eng. Razvan Pacurar, TUCN, RO



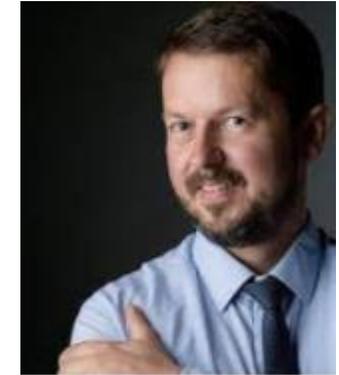
Prof.dr.eng. Milos Simonovic, University of Nis, SRB



Prof.dr.eng. Remigiuksz Labudski, Univ. of Poznan, PL



Prof.dr.eng. Peter Kostal, STU, Bratislava, SK



Prof.dr.eng. Sven Maricic, Juraj Dobrila University, Istria, HR

thank you



Bransilav Rabara, BIZZCOM s.r.o., Bučany, SK



Mate & Senka Babic, B. M. Plast d.o.o, Optajia, HR

thank you

BRIGTH International Summer School – TUCN – 19 -31.07.2021

Big thank you to all the participants to the BRIGTH International Summer School 2021 edition – Cluj-Napoca, Romania



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TECHNICAL UNIVERSITY OF CLUJ-NAPOCA ROMANIA

BRIGTH International Summer School on:

3D printing for medical applications



19 - 30 JULY 2021

WHO can apply
Bachelor students (BSc)
Master students (MSc)
PhD students

SPECIALIZATIONS:
Manufacturing Engineering
Mechatronics & Robotics
Mechanical & Bio-Mechanical Engineering
Science of Materials
Physics & Chemistry
Medicine & Pharmacy

More details

www.bright-project.eu

Registration until 1st of July 2021

Organized by
Technical University of Cluj-Napoca
in cooperation with



Co-funded by the Erasmus+ Programme of the European Union



Strong motivation for the next BRIGTH International Summer school – 2022 edition - in Croatia - to be remembered by all of you! Be sure that you will be there next year dear BRIGTH students! 😊

Most active students at BRIGTH summer school will be supported by the BRIGTH consortium to apply for ERASMUS scholarships for the BRIGTH International Summer School to be organized next year in Croatia (Brijuni Island) (July 2022) + they will have the chance to apply and work for their diploma projects in the field of 3D printing / VR/ AR / medical applications with the support and under supervision of BRIGTH partners consortium)!!!



BRIGHT International Summer School – Follow up / contact



Bright Erasmus+ Project
@bright3Dprinting · Educație

follow up

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Facebook, Instagram:

<https://www.facebook.com/bright3Dprinting>

BRIGHT webpage:

<https://bright-project.eu/>

