

DASSAULT SYSTÈMES SOLUTIONS CENTER

Contact details

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Acronym	DSSC
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Areas of expertise

The main focus of the center is **Digital Product and Production Design Development and Simulation** based on the following topics:

CAD/CAM/CAE – the center is the first Dassault Systèmes academic partner from Romania and offers solutions in the fields of computer aided design, as well as modelling and simulation of products and manufacturing systems.

Reverse engineering and digitization –with interdisciplinary applications in: innovative product development, digital archaeology and reconstruction of history, medical prosthetics and others.

Virtual and augmented reality – complex computer-generated 3D environments that allow users to access and interact with an alternative reality. Users are able to interact with 3D models, in a proportion 1:1 or bigger overview of complex assembly parts and conduct virtual inspections, pick apart parts and break them down to its individual components for measurement, inspection, ergonomics, etc.

Team

Prof. Dr. Eng. Daniela Popescu, Prof. Dr. Eng. Mircea Galiş, Prof. Dr. Eng. Călin Neamţu, Lect. Dr. Eng. Florin Popişter, Assist. Dr. Eng. Rareş Ghinea, Assist. Dr. Eng. Radu Comes, Dr. Eng. Buna Zsolt, Dr. Eng. Ionuţ Badiu, Eng. Sabau Radu, Eng. Zabala Ioan

Representative projects

IDArt – “Elaborating Complex Methodologies Regarding the Attribution and Authentication of Medieval and Early Modern Paintings Belonging to the National Cultural Heritage”, PNIII-P1-1.2 PCCDI 2018, (2018-2020)

DACIT, “The conservation and revitalisation of cultural and natural heritage, When ancient everyday life becomes UNESCO heritage. The scanning, digital restoration and contextualization of Dacian artefacts from Orăştie Mountains”, EEA grants - PA16/RO12, (2015-2016)

CAD/CAM/CAE, projects contracts with industrial partners Comelf SA, Turdeana SA, RAAL SA, Robert Bosch SRL, Continental Automotive Romania, Elcom Cablaje, Leoni Wirings System Romania, etc.

NoGAP, “Knowledge Transfer Community to bridge the gap between research, innovation and business creation”, European FP7 project, (2013-2016)

“Digitizing and reconstructing the historic artifacts from the “Grădiştea de munte” archaeological site (Sarmisegetuza Regia)”, The National Museum of History of Transylvania, (2012)

“Blended learning course on Measurement Uncertainty for advanced vocational training”, Leonardo da Vinci - Transfer of Innovation, (2011-2013)

“Realizing a virtual museum for promoting the patrimony of The National Museum of History of Transylvania”,

The National Museum of History of Transylvania (2010)
 “Project concerning research on new product design, development and simulation”, HAMK Univ. Finland , (2007-2009)
 “Scanning and generating surfaces for a orthopedic prosthesis”, SC Gibas CNC East Europe SRL, (2008)

Significant results

The most representative publications of the past 5 years:

1. Neamtu, Calin; Marutoiu, Victor Constantin; Bratu, Ioan; et al., Multidisciplinary Investigation of the Imperial Gates of the 17th Century Wooden Church in Salisca, Cluj County, Romania SUSTAINABILITY Volume: 10 Issue: 5 Article Number: 1503 Published: MAY 2018
2. Todorovic, Oliver; Constantinescu, Carmen; Popescu, Daniela, FOUNDATIONS FOR ECONOMIC EVALUATION OF EXOSKELETONS IN MANUFACTURING, ACTA TECHNICA NAPOCENSIS SERIES-APPLIED MATHEMATICS MECHANICS AND ENGINEERING Volume: 61 Issue: 3 Special Issue: SI Pages: 221-230 Published: SEP 2018
3. Popescu, D.; Dragomir, M.; Popescu, S.; et al., FROM SMART PRODUCTS TO SMART MANUFACTURING IN EMERGING ECONOMIES: CHALLENGES AND INSIGHTS FROM THE FURNITURE INDUSTRY 24TH INTERNATIONAL CONFERENCE ON PRODUCTION RESEARCH (ICPR) Book Series: DESTech Transactions on Engineering and Technology Research Pages: 93-97 Published: 2017
4. Bratu, I.; Siluan, Monk; Marutoiu, C.; et al., Science Applied for the Investigation of Imperial Gate from Eighteenth Century Wooden Church of Nicula Monastery JOURNAL OF SPECTROSCOPY Article Number: 6167856 Published: 2017
5. Măruțoiu, C., I. Bratu, L. Troșan, C. Neamtu, V. C. Măruțoiu, D. Pop, C. Tănăselia, and S. Garabagiu. "Scientific investigation of the Imperial Gates belonging to the wooden church from Săcel, Turda County, Romania." *Spectrochimica Acta Part A: Molecular and Biomolecular Spectroscopy* 152 (2016): 311-317.
6. C. Marutoiu, L. Nica, I. Bratu, O. F. Marutoiu, Z. Moldovan, C. Neamtu, et al., "The Scientific Investigation of the Imperial Gates Belonging to Sanmihaiul Almasului Wooden Church (1816)," *Revista De Chimie*, vol. 67, pp. 1739-1744, Sep 2016.
7. C. Radu, C. Neamtu. "Design a low-cost eyewear display adapted to additive manufacturing." *Acta Technica Napocensis-Series: Applied Mathematics, Mechanics, and Engineering*, 58, no. 4 (2015).
8. D. Popescu, F. Popister, S. Popescu, C. Neamtu, and M. Gurzau, "Direct toolpath generation based on graph theory for milling roughing", *Procedia CIRP*, 25, 2014, pp.75-80.
9. D. Popescu, S. Popescu, C. Neamtu, "Framework for increasing adequacy of simulation software in training CMM specialists", in *10th CIRP International Conference on Computer Aided Tolerancing*, pp. 243-250
10. D. Popescu, S. Popescu, C. Neamtu, D. Mihai, "Model for developing design of the electronic courses" in *IEEE International Conference Automation, Quality and Testing, Robotics*, pp. 483-488

Significant solutions:

Measurement uncertainty evaluation in case of classical measurements hand tools for length

Mold Design for injected plastic part

Reverse engineering of mechanical parts

Terrestrial laser scanning

Products and technologies:

Virtual reality application for museum

Augmented reality application for measurement

Others:

Neamtu Călin, Popescu Daniela, Popișter Florin, *Module CAD/CAM în Catia V5*, Editura Mega, Cluj-Napoca, 2013

Neamtu Călin, Dragomir Mihai, Popescu Daniela, Popescu Sorin, Răcășan Radu *Uncertainty of conventional measurements / Incertitudinea de măsurare în metrologia clasică*, Editura UT PRESS, Cluj-Napoca, 2012

Wojciech Płowucha (ed.) et al. – *Didactics of Coordinate Metrology*, Editura Wydawnictwo naukowe Akademii Techniczno-Humanistycznej W Bielsku-Białej, - Bielsko Biala 2012, - capitolul Virtual Laboratory, autori: Călin Neamtu, Mihai Dragomir, Daniela Popescu, Rareș Ghinea

The offer addressed to the economic environment

Research & development	Virtual reality in training and education; E-education; Designing and optimization of products and industrial manufacturing systems; Reverse engineering; Digital Archaeology; Research in the field of Digital Factory simulations; Research on adapting the reverse engineering techniques in various interdisciplinary fields (art, medicine, etc.) Reverse engineering and reconstruction of complex surfaces Designing, modelling and 3D simulating of manufacturing systems 3D modelling of components and complex assemblies
Consulting	Consultancy regarding the optimization of CAD/CAM processes; Consultancy regarding production planning; Consultancy regarding advance 3D modelling; Consultancy in virtual simulation
Training	CAD/CAM/CAE: using the Dassault Systèmes software packages Training on various topics with the help of virtual reality Advanced reverse engineering technique, 3D Shet metal design, Measurement Uncertainty

Last updated: May2020