Universitatea din Craiova
Facultatea de Mecanică

Prof. Dr. Ing. Nicolae DUMITRU

Activitate științifică

1. Articole și publicații științifice indexate Web of Science Thomson Reuters (WOS – selecție)

1. Tarniță, D., Petcu, A. I., & **Dumitru, N.** (2020). Influences of treadmill speed and incline angle on the kinematics of the normal, osteoarthritic and prosthetic human knee. Romanian Journal of Morphology and Embryology, 61(1), 199.https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7728106/ WOS:000559110800004
2. Geonea, I., **Dumitru, N**., Copilusi, C., & Margine, A. (2020, January). Experimental Determination of the Loading Capacity of the Elastic Bracelet Assembly. In IOP Conference Series: Materials Science and Engineering (Vol. 724, No. 1, p. 012006). IOP Publishing. WOS:000619349400006 https://iopscience.iop.org/article/10.1088/1757-899X/724/1/012006/meta
3. **Dumitru N.**, Copilusi C., Calangiu A., Geonea I. (2020) An Engine Mechanism Dynamic Analysis by Considering the Kinematic Elements as Deformable Ones. In: Dumitru I., Covaciu D., Racila L., Rosca A. (eds) The 30th SIAR International Congress of Automotive and Transport Engineering. SMAT 2019. Springer, Cham. https://doi.org/10.1007/978-3-030-32564-0_2 WOS:000528526600002
4. Bolcu A., **Dumitru N**., Bolcu D., Miritoiu C.M., Stanescu M.M. (2020) A Study of the Mechanical Behavior of a Car Part Realized from Epoxy Resin Reinforced with Cotton Woven. In: Dumitru I., Covaciu D., Racila L., Rosca A. (eds) The 30th SIAR International Congress of Automotive and Transport Engineering. SMAT 2019. Springer, Cham. https://doi.org/10.1007/978-3-030-32564-0_64 WOS:000528526600064
5. **Dumitru N**., Geonea I., Copilusi C., Dumitru S., Otat O. (2019) Dynamic Models for Analyzing a Self-propelled Vehicle for People with Locomotor Disabilities. In: Burnete N., Varga B. (eds) Proceedings of the 4th International Congress of Automotive and Transport Engineering (AMMA 2018). AMMA2018 2018. Proceedings in Automotive Engineering. Springer, Cham. https://doi.org/10.1007/978-3-319-94409-8_78 WOS:000578264900078
6. Ionut Geonea, **Nicolae Dumitru**, Cristian Copilusi, Ilie D., Otat O., Dragos Tutunea. (2019) Theoretical and Experimental Analysis for the Load Capacity of the Cone Tightening Assemblies. In: Burnete N., Varga B. (eds) Proceedings of the 4th International Congress of Automotive and Transport Engineering (AMMA 2018). AMMA2018 2018. Proceedings in Automotive Engineering. Springer, Cham. https://doi.org/10.1007/978-3-319-94409-8_51 WOS:000578264900051
7. **Nicolae, Dumitru**, Sorin, Dumitru, Cristian, Copilusi, Cristina, Ploscaru (2018, May). A Reconfigurable Leg Exoskeleton for Human Locomotion Rehabilitation. In 2018 International Conference on Control, Artificial Intelligence, Robotics & Optimization (ICCAIRO) (pp. 95-102). IEEE. WOS:000493714800015 https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=8698429
8. Geonea, I., **N. Dumitru**, and A. Margine. "*Analytical and Numerical Study of Critical Speed for Right Shafts.*" Acoustics and Vibration of Mechanical Structures—AVMS-2017. Springer, Cham, 2018. 411-417. WOS:000437313600049 https://link.springer.com/chapter/10.1007/978-3-319-69823-6_49

9. Dumitru, S., Copilusi, C., & **Dumitru, N**. (2018, May). *A leg exoskeleton command unit for human walking rehabilitation*. In 2018 IEEE International Conference on Automation, Quality and Testing, Robotics (AQTR) (pp. 1-6). IEEE. https://ieeexplore.ieee.org/abstract/document/8402732 WOS:000450065900033
10. Bolcu, A., **Dumitru, N**., Ciuca, I., Stanescu, M. M., & Bolcu, D. (2017). *The Vibrations Study of DAMMAR Based Composite Bars Reinforced with Natural Fibers by Using a New Euler-Bernoulli Theory*. MATERIALE PLASTICE, 54(3), 423-429. **IF 1.248 WOS:000426412300004** http://www.revmaterialeplastice.ro/pdf/4%20BOLCU%20A%203%2017.pdf
11. Geonea, Ionut, **Nicolae Dumitru**, and Ilie Dumitru. "Experimental and theoretical study of friction torque from radial ball bearings." IOP Conference Series: Materials Science and Engineering. Vol. 252. No. 1. IOP Publishing, 2017. WOS:000419817200048 https://iopscience.iop.org/article/10.1088/1757-899X/252/1/012048/meta
12. Marinescu, Gabriel Cătălin, Ştefan-Cristian Castravete, and **Nicolae Dumitru**. "*Vibration study of a vehicle suspension assembly with the finite element method*." IOP Conference Series: Materials Science and Engineering. Vol. 252. No. 1. IOP Publishing, 2017. WOS:000419817200030 https://iopscience.iop.org/article/10.1088/1757-899X/252/1/012030/meta
13. Oana, O., **Nicolae, Dumitru**, & Ilie, D. (2017, October). *Dynamic models to analyse the influence of the seat belt in a frontal collision*. In IOP Conference Series: Materials Science and Engineering (Vol. 252, No. 1, p. 012017). IOP Publishing. WOS:000419817200017 https://iopscience.iop.org/article/10.1088/1757-899X/252/1/012017/meta
14. **Dumitru, N**., Copilusi, C., Geonea, I., & Margine, A. (2016, October). *Kinematic and Dynamic Study of a Mechanism for a Vehicle Front and Rear Stabilizer Bars*. In International Congress of Automotive and Transport Engineering (pp. 161-169). Springer, Cham. WOS:000390821400018 https://link.springer.com/chapter/10.1007/978-3-319-45447-4_18
15. Oţăt, O. V., **Dumitru, N.**, Oţăt, V., & Dumitru, I. (2016, October). *Determination of Kinematic and Dynamic Behavior in the Driver's Skull upon the Impact with the Steering Wheel*. In International Congress of Automotive and Transport Engineering (pp. 812-819). Springer, Cham. https://link.springer.com/chapter/10.1007/978-3-319-45447-4_89 WOS:000390821400089
16. Dumitru, I., **Nicolae, Dumitru**, Matei, L., & Racila, L. (2016). *Saturation flow mathematical model based on multiple combinations of lane groups*. Transportation research procedia, 18, 399-404. https://www.sciencedirect.com/science/article/pii/S2352146516308079 WOS:000441374000073
17. Dumitru, I., **Nicolae, Dumitru**, Matei, L., & Racila, L. (2016). *Public transport traffic management systems simulation in Craiova city*. Transportation research procedia, 18, 405-410. https://www.sciencedirect.com/science/article/pii/S2352146516308080 WOS:000441374000074
18. Geonea, I., **Dumitru, N.** (2016). *Motion analysis of a robotic wheelchair*. In Advances in Robot Design and Intelligent Control (pp. 471-479). Springer, Cham. https://link.springer.com/chapter/10.1007/978-3-319-21290-6_47 WOS:000381804400047
19. Tarnita, D., Catana, M., **Dumitru, N.**, & Tarnita, D. N. (2016). *Design and simulation of an orthotic device for patients with osteoarthritis*. In New Trends in Medical and Service Robots (pp. 61-77). Springer, Cham. https://link.springer.com/chapter/10.1007/978-3-319-23832-6_6 WOS:000429272700006
20. **Dumitru, N.**, Copilusi, C., & Ciortan, M. (2016). *Kinematic and Dynamic Study Contributions on Human Jaw System*. In New Trends in Medical and Service Robots (pp. 79-91). Springer, Cham. https://link.springer.com/chapter/10.1007/978-3-319-23832-6_7 WOS:000429272700007
21. Sorin, Dumitru., Dorian, C., Florin, M. L., **Nicolae, Dumitru**, & Valentin, G. (2015, October). *The experimental model of an forearm exoprosthesis*. In System Theory, Control and Computing (ICSTCC), 2015 19th International Conference on IEEE. (pp. 255-259). https://ieeexplore.ieee.org/abstract/document/7321302 WOS:000382384100043

22. Geonea, I., **Dumitru, N**., & Margine, A. (2015). *Design and motion study of a wheelchair for disabled people*, WORLD CONGRESS ON ENGINEERING, WCE 2015, VOL II Book Series: Lecture Notes in Engineering and Computer Science Pages: 1028-1033. WOS:000380592500067 http://www.iaeng.org/publication/WCE2015/WCE2015_pp1028-1033.pdf
23. **Dumitru, N**., Dumitru, S., Copilusi, C., Semenescu D., & Geonea, I. (2015). *Modal dynamic analysis of the wicket gate mechanism from a hydraulic turbine*. In Proceedings of the World Congress on Engineering (Vol. 2). Lecture Notes in Engineering and Computer Science 2218, pp. 1213-1218. WOS:000380592500102 http://www.iaeng.org/publication/WCE2015/WCE2015_pp1213-1218.pdf
24. Copilusi, C., Margine, A., & **Dumitru, N**. (2015). *Case Study Regarding a New Knee Orthosis for Children with Locomotion Disabilities*. In Mechanisms, Transmissions and Applications (pp. 147-155). Springer, Cham. WOS:000380538400016 https://link.springer.com/chapter/10.1007/978-3-319-17067-1_16
25. Geonea, I., Ungureanu, A., **Dumitru, N**., & Racilă, L. (2015). *Dynamic Modelling of a Four Legged Robot*. In New Trends in Mechanism and Machine Science (pp. 147-155). Springer, Cham. https://link.springer.com/chapter/10.1007/978-3-319-09411-3_16 WOS:000357867900016
26. **Dumitru, N**., Craciunoiu, N., Malciu, R., & Ploscaru, N. (2015). *Elastodynamic analysis of the sucker rod pumping system mechanism*. In New Trends in Mechanism and Machine Science (pp. 355-363). Springer, Cham. https://link.springer.com/chapter/10.1007/978-3-319-09411-3_38 WOS:000357867900038
27. Tarnita, D., Popa, D., Boborelu, C., **Dumitru, N**., Calafeteanu, D., & Tarnita, D. N. (2015). *Experimental bench used to test human elbow endoprosthesis*. In New Trends in Mechanism and Machine Science (pp. 669-677). Springer, Cham. WOS:000357867900071 https://link.springer.com/chapter/10.1007/978-3-319-09411-3_71
28. Ciunel, S., Popa, D. L., & **Dumitru, N.** (2013). *Studies about Movement Biofidelity of a Dummy Neck Used in an Impact Testing Device*. In Applied Mechanics and Materials (Vol. 371, pp. 539-543). Trans Tech Publications. https://www.scientific.net/amm.371.539 WOS:000334556900105
29. **Dumitru, N**., Malciu, R., Calbureanu, M., Dumitru, S., & Marinescu, G. C. (2012). *Dynamic Analysis of a Mobile Mechanical System with Deformable Elements*. In Advanced Materials Research (Vol. 463, pp. 1242-1245). Trans Tech Publications. https://www.scientific.net/AMR.463-464.1242 WOS:000308114100244
30. **Dumitru, N**., Copilusi, C., Marin, M., & Rusu, L. (2010). *Human Lower Limb Dynamic Analysis with Applications to Orthopedic Implants*. In New Trends in Mechanism Science (pp. 327-334). Springer, Dordrecht. https://link.springer.com/chapter/10.1007/978-90-481-9689-0_38WOS:000395597100038
31. **Dumitru, N**., Malciu, R., & Geonea, I. (2010). *Differential transmission for robotizing a powered wheelchair*. Proceedings of the OPTIROB, 47-51. WOS:000392682500009 http://rpsonline.com.sg/proceedings/9789810858407/978-981-08-5840-7_S1-10.xml
32. **Nicolae Dumitru**, Danel Semenescu, Nicolae Craciunoiu, Daniela Vintila and Ionut Geonea, *On the Modeling of a Hydraulic Turbine Directory Apparatus*, Proceedings Of The Fifth International Conference On Optimization Of The Robots And Manipulators, 2010 Pages: 75-80 Published: 2010. http://rpsonline.com.sg/proceedings/9789810858407/978-981-08-5840-7_S2-5.xml WOS:000392682500014
33. **Dumitru, N**., Negru, M., & Dumitru, S. (2010). *Simulation of a pressure controlled hose type joint using FEM*. In SYROM 2009 (pp. 549-562). Springer, Dordrecht. https://link.springer.com/chapter/10.1007/978-90-481-3522-6_46 WOS:000289492600046
34. **Dumitru, N**., Copilusi, C., & Zuhair, A. (2009, July). *Dynamic Modeling of a Mobile Mechanical System with Deformable Elements*. WORLD CONGRESS ON ENGINEERING 2009, VOLS I AND

II Book Series: Lecture Notes in Engineering and Computer Science Pages: 1569-+ Published: 2009. http://iaeng.org/publication/WCE2009/WCE2009_pp1569-1574.pdf
WOS:000271615700291

35. Ciupitu, I., **Dumitru, N**., & Teisanu, C. (2003). *Static analysis of the guiding bearing drill contact by finite element method*. Journal of materials processing technology, 143, 270-276. **IF 4.669**
https://www.sciencedirect.com/science/article/pii/S0924013603004709
WOS:000187510100052

2. Brevete de invenţii indexate

Brevete de inventii indexate OSIM

1. Brevet, nr. A 00147 din 2019, Exoschelet destinat asistării mersului uman și reabilitării, data de depozit, 05.03.2019. Titular-Universitatea din Craiova. **Acordat prin hotărârea OSIM 4.3/35 din 29.01.2021. Patent Number: RO134430-A1**

Inventatori: Geonea Ionut, **Nicolae Dumitru**, Sorin Dumitru, Cristian Copiluși, Ciurezu Gherghe Leonard.

Brevete de inventii indexate WOS

1. Robotic system for neuro-motor rehabilitation for functional recovery of person, has elements that are articulated to one another by some kinematic rotation couples, and movement of three actuators are placed on frame by chain transmissions/2020. Patent Number: RO134022-A2

Inventatori: DUMITRU N, COPILUSI P C, DUMITRU S, GEONEA I D, ROSU E

2. Exoskeleton-type system to assist locomotion in locomotor-disabled persons, has elements leading mechanisms for right leg and left leg which are actuated by electric motor which transmits movement to axle/2020. Patent Number: **RO133604-A2**

Inventatori: DUMITRU N, GEONEA I D, DUMITRU S, COPILUSI P C, CIUREZU-GHERGHE L.

3. Articole şi publicaţii ştiinţifice indexate SCOPUS (prim-autor selecţie)

1. **Dumitru, N**., Dragut, E., Craciunoiu, N., & Geonea, I. (2018). *Experimental Bench for Spur Gears Efficiency Measurement*. In New Advances in Mechanism and Machine Science (pp. 477-485). Springer, Cham.https://link.springer.com/chapter/10.1007/978-3-319-79111-1_47
2. **Dumitru, N**., Copilusi, C., Dumitru, S., Rosu, E., *Design of a reconfigurable exoskeleton used on human locomotion recovery*, International Journal of Mechanics 12, pp. 150-161, 2018.
http://www.naun.org/main/NAUN/mechanics/2018/a382003-abn.pdf
3. **Dumitru N**., Copilusi C., Dumitru S., Rusu L., Rosu E., *A Knee Exoskeleton Mechanism Dynamic Analysis*, Proceedings of the World Congress on Engineering and Computer Science 2018 Vol II, WCECS 2018, October 23-25, 2018, San Francisco, USA. http://www.iaeng.org/publication/WCECS2018/WCECS2018_pp552-557.pdf
4. **Dumitru, N**., Craciunoiu, N., Geonea, I., & Copilusi, C. (2017). *Elastodynamic Analysis of a Mechanism with Flexible Links*. Lecture Notes in Engineering and Computer Science, 2230, pp. 821-828. http://www.iaeng.org/publication/WCE2017/WCE2017_pp821-828.pdf
5. **Dumitru, N**., & Dumitru, V. C. (2014). *Mechatronic System with Applications in Medical Robotics*. In The 11th IFToMM International Symposium on Science of Mechanisms and Machines (pp. 371-379). Springer, Cham. https://link.springer.com/chapter/10.1007/978-3-319-01845-4_37
6. **Dumitru, N**., Malciu, R., Calbureanu, M., *A finite element formulation for the elastodynamic analysis of mobile mechanical systems*, International Journal of Mathematical Models and Methods

in Applied Sciences, 7(7), pp. 708-716, 2013. http://www.naun.org/main/NAUN/ijmmas/g052001-240.pdf
7. **Dumitru, N**., Malciu, R., Grecu, V., *Theoretical and experimental study of the human upper limb dynamic behavior*, Advanced Materials Research 748, pp. 759-764, 2013. https://www.scientific.net/AMR.748.759
8. **Dumitru, N**., Marin, M., Margine, A., *Contributions to the analysis of the dynamic response of a hexapod type mobile robot*, 13th International Congress on Sound and Vibration 2006, ICSV 2006, 2, pp. 859-866. http://toc.proceedings.com/17866webtoc.pdf
9. **Dumitru, N**., Copilusi, C., Geonea, I., Tarnita, D., & Dumitrache, I. (2015). *Dynamic analysis of an exoskeleton new ankle joint mechanism*. In New Trends in Mechanism and Machine Science (pp. 709-717). Springer, Cham. https://link.springer.com/chapter/10.1007/978-3-319-09411-3_75

4. Produse, tehnologii, platforme și servicii inovative (validate conform procedurilor specifice unităților de învățământ superior sau de cercetare)

1. Sistem Robotic Destinat Reabilitarii Locomotiei Persoanelor cu Deficiente Neuromotorii (acronim: NeuRob).

5. Atragerea resurse financiare prin granturi/proiecte/contracte terţi

Director sau responsabil partener la grant/proiect câştigat prin competiţie naţională sau inmternaţională

Director sau responsabil partener la grant/proiect câștigat prin competiție națională sau internațională	Date identificare contract	Perioada de implementare
1	Nr. 3352/2004-2006- Titlu: Tehnologie şi echipament specializat pentru calificarea seismică, la locul de montaj a echipamentului electric de înaltă tensiune. Beneficiar: MENER/ Poziție: Director Valoare: 17.000 RON	**2004-2006**
2	**Contract de cercetare Nr. 239 PED/2017, cod PN-III-P2-2.1-PED-2016-0934 cu titlul Sistem robotic destinat reabilitării locomoției persoanelor cu deficiențe neuromotorii, Acronim: NEUROB, UEFISCDI, Pozitie:Director**	**2017-2018**
3	Proiect Nr. 9120 din 23.10.2009, Cod SMIS – 13613, “Reabilitare, modernizare şi extindere spaţii de învăţământ şi cazare, Facultatea de Mecanică Craiova P+4, D+4 şi desfiinţare construcţie C4” – finantat prin POR 2007-2015, Axa prioritara 3, Domeniul major de intervenţie 3.4 Finalizare decembrie 2015 – Responsabil proiect.	**Perioada de implementare2013-2015 Monitorizare 2016-2021**

Membru în echipă la grant/proiect câștigat prin competiție națională sau internațională, proiecte/contracte terți

Membru în echipă la grant/proiect câștigat prin competiție națională sau internațională, proiecte/contracte terți	**Date identificare contract**	**Perioada de implementare**
1	Polul de competitivitate ″Automotive Sud-Vest Oltenia″: Cercetări în vederea implementării unui sistem de mentenanţă avansată pentru industria automotive în scopul creşterii gradului de competitivitate, perioada 2013-2015, Cod P009 002-1139-31-03-2014. Poziţie: Participant.	**2013-2015**
2	PROGRAMUL OPERAŢIONAL COMPETITIVITATE 2014-2020 AXA PRIORITARĂ 1 – Cercetare, dezvoltare tehnologică și inovare (CDI) în sprijinul competitivităţii economice și dezvoltării afacerilor Acțiunea 1.1.4 Atragerea de personal cu competențe avansate din străinătate pentru consolidarea capacității de CD Titlu Proiect: “Consolidarea capacitatii de cercetare-dezvoltare in imagistica si tehnologie avansata pentru proceduri medicale minim invazive - iMTECH” Contract nr. 65/08-09-2016, ID P_37_357, Cod SMIS: 103633.	**2016**
3	Proiectul nr. P09003/1138/31.03.2014, codul SMIS 50139. Titlu: Proiectarea virtuala a unor aplicaţii mecatronice şi robotice specifice industriei automotive şi transporturilor – PV AM, Proiectul face parte integrantă din pachetul integrat aprobat pentru polul de competitivitate “Automotive Sud-Vest Oltenia, Durata 2 ani, membru	**2014**
4	2014-2016 – ” Bypass Gastroenteral Pentru Pacienţii Obezi Şi Diabetici Bazat Pe Intervenţii Minimal Invazive Endoscopice (GEMINI)", finantat de Ministerul Educatiei si Cercetarii Contract No. 136/2014, PN-II-PT-PCCA-2013-4-1257. Poziţie: Participant.	**2014-2016**
5	Contract international. Proiectul G5580, cu titlul: Creation of New generation Titanium Diboride composite armour material, acronim ARMPROT, finantat de programul NATO Science for Peace&Security Programme.	**2019-2022**
6	Contract international, programHorizont 2020 MG-4.4-2014, Nr. 633929,2015-2018, titlu proiect : Promoting Innovation in the Inland Waterways Transport Sector — Prominent, coordonare STICHTING STC-GROUP Netherlands,Poziţie: Participant.	**2015-2018**
7	Proiectul 2019-1-RO01-KA203-063486 cu titlul: “Digital Manufacturing Master Degree to set specialists for the dawn of the Industry 4.0”, acronim DIGIMAN, finantat de programul Erasmus + Parteneriate Strategice pentru Invatamantul Superior	**2019-2022**

martie 2021 ***Prof. dr. ing. Nicolae DUMITRU***