CONCEPT AND DESIGN OF A BIOMECHANICAL SYSTEM FOR THE HUMAN ARM

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Abstract (300 word limit)

Statement of the Problem: *There are more than 60 years that has been carried on research on biomechanical system for the human arm. The purpose is to make an easier life for people who lack their arm.*

This study evidences main aspects related to the design and manufacture of a prototype for human arm prosthesis as follows: kinematic and kinetostatic analysis of hand fingers; 3D modeling of the biomechanical system; hardware – software platform; FDM printing; preliminary tests on the prototype subassemblies.

Image

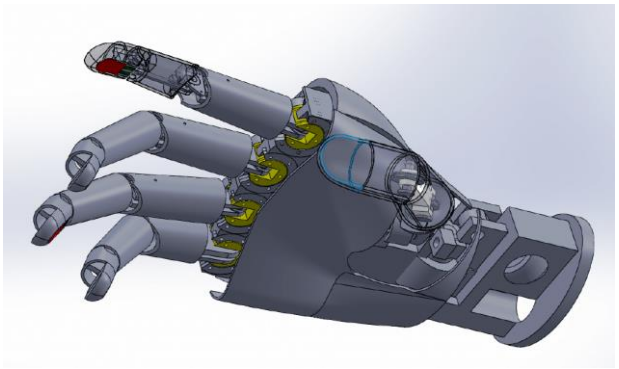


Fig. 1 Biomechanical system for the human arm – 3D model

Recent Publications (minimum 5)

1. Mihaiela Iliescu, Luige Vladareanu, Marian Lazăr, Doina Marin, Marius Pandelea, Octavian Melinte and Ioana Pintilie, *Complex Mechatronic System Used for Obtaining Perovskite Solar Cells*, ACTA ELECTROTEHNICA, vol. 60, pp. 183 – 188, 2018, ISSN 2344-5637, ISSN-L 1841-3323
2. Mihaiela Iliescu, Luige Vlădăreanu, Marius Pandelea, D. Marin, *Testing Mechanical Characteristics of Hardened LGS Profile Material*, The 2nd International Conference "Experimental Mechanics in Engineering" – eMECH 2018, pp. 43 – 48, Brasov, 2018, ISSN 2457 – 8541, ISSN-L 2457 - 8541
3. Mihaiela Iliescu, Victor Vladareanu, Mihai Serbanescu, Marian Lazar, *„Sensor Input Learning for Time-of- Flight Scan* Laser", Journal of Control Engineering and Applied Informatics, CEAI, Vol.19, No.2 pp. 51-60, 2017, ISSN 1454-8658
4. Mihaiela Iliescu, Maria-Magdalena Roşu, Dragos Capăţîna, "Optimization of the Induction Process on Light Gauge Steel Profiles Used in Metallic Framed Sustainable Eco-Constructions", Sustainability 2019, 11, 6686; doi:10.3390/su11236686
5. Mihaiela Iliescu, Luige Vlădăreanu, Corina Radu (Frenţ), Ileana Dugăeşescu, Marius Pandelea, Doina Marin. *Research on upper limb biomechanical system*, Periodicals of Engineering and Natural Sciences, Vol. 7, No. 1, June 2019, pp.267-274, ISSN 2303-4521, DOI: 10.21533/pen.



Biography (150 word limit)

Senior researcher at the Institute of Solid Mechanics, Romanian Academy. I work in the Mechatronics and Robotics department and I am focused on research in: concept and design of mechatronic systems: biomecanical systems; command and control of these systems; (nano)technolgies and materials; solid mechanics. I have got habilitation degree in 2017 and I coordinate doctoral theses in the field of mechanical engineering.

My previuos work experience involves more than 20 years as professor at „POLITEHNICA" University of Bucharest, Romania – teaching in the field of manufacturing technologies and applied statistics in engineering.

Since 2013, I have also worked in a private research and development SME, OPTOELECTRONICA-2001, focusing on laser radiation application in engineering and on technologies for manufacturing photovoltaic cells.

My scientific activity results are dissaminated in more than 200 papers (published in journals and conference proceedings), 10 books (as first-author or, co-author), 30 research projects, 5 patents, etc.

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Notes/Comments: