

CONTRIBUTIONS ON DEVELOPMENT OF MECHANISM SCIENCE WITH APPLICATIONS IN ROBOTICS, MECHATRONICS AND MECHANICAL ENGINEERING

Author: Erwin-Christian LOVASZ

Abstract

The present habilitation thesis was structured in five sections and covered the scientific, academic and professional achievements from the period 1998 to 2015.

Section (I) give an overview of the thesis content and shows the highlighted papers which were published by the author in prestigious Journals and Conferences.

The Section (II) described some of the scientific achievements within the author's research directions and was organized in four chapters. The first chapter "Scientific achievements regarding the design of the mechanisms using profiled wheels" shows the contributions on computing of the base circle radius and evaluating of the wear susceptibility of the cam mechanisms with translating or oscillating flat-face follower, and on the designing of different non-circular wheels of belt mechanisms for self-balancing applications. The second chapter "Scientific achievements regarding the design of complex mechanisms structures" laid out contributions in designing of geared linkages with non-circular gears and with linear actuation, respectively of 5-link belt mechanisms. The third chapter "Scientific achievements regarding of mechanism development for mechatronics, robotics and mechanical applications" presents some mechanism design and control applications for haptic exoskeleton used in space telerobotics, for a new class of planar parallel manipulators and for a fishing reel spool mechanisms. The last chapter "Scientific achievements regarding the analysis of compliant mechanisms" shows the research of the compliant mechanisms, which use elastic connections, focused on the structural analysis of the compliant mechanisms with elastic connections, simulation and dynamic analysis of the compliant mechanisms with or without integrated piezo-actuators.

The Section (III) of the habilitation thesis mentions the main academic achievements on national and international level of the candidate within the last 17 years after defending the PhD thesis in co-advisorship between University Politehnica Timișoara and Technical University Dresden, defended on 27th of February 1998 at TU Dresden and on 03 of June 1998 at UP Timișoara.



The Section (IV) shows the career evolution and development plans organized in the following systematization: Key research directions, Objectives, Planned activities and Financial, human and infrastructure resources.

The Section (V) contains the references used in the section "Scientific achievements".

The full abstract at:

http://www.upt.ro/img/files/2015-2016/doctorat/abilitare/lovasz/Abstract_Lovasz_Erwin.pdf

Habilitation Commission

Prof. Dan PERJU
Universitatea Politehnica Timisoara;
Prof. Marco CECCARELLI
Universitatea din Cassino;
Prof. Burkhard CORVES
Universitatea RWTH Aachen;
Prof. Niels MODLER
Universitatea Tehnica Dresda.