Prof. Michael Valášek, M.Eng., Ph.D., DrSc.
Faculty of Mechanical Engineering, Czech Technical University in Prague
Czech, born: 25/03/1956 in Plzen

Education – **Previous positions**

1980 MSc (Ing) , Faculty of Mechanical Engineering (FME), CVUT in Prague, field of automated control systems of technological processes, MSc thesis "Design of an algorithm for symbolic modifications of complex mathematical expressions (Lagrange equations)"
1984 PhD (CSc), FME, CVUT in Prague, field of technical cybernetics, PhD thesis "Synthesis of optimal robot trajectory"
1991 DrSc, FME CVUT in Prague, field of construction of production machines, DrSc thesis "Theoretical foundations of computer aided systems for engineering work in mechanical engineering"
1992 Assoc. Prof., FME CVUT in Prague, field of mechanics of rigid and deformable bodies and environments, habilitation thesis "Effective formulation and implementation of dynamic formalisms of computer mechanics of multibody systems"
1997 Full Prof., FME CVUT in Prague, field of mechanics of rigid and deformable bodies and environments, professorship lecture "Mechatronics - perspective of mechanical engineering?"

Employment

1980-1984 PhD study, Dept. of Automatic Control, FME, CVUT in Prague
1984 Study stay at Imperial College of Science and Technology, London
1984-1989 Researcher, FME, CVUT in Prague, State Research Institute of Construction of Machines, Bechovice
1989- 1990 Institut B Für Mechanik, Universität Stuttgart Alexandr von Humboldt scholarship
1990- 1993 Assistant at the Department of Mechanics, FME, CVUT in Prague
1992- 1993 University of Connecticut, USA, Fulbright scholarship
1993- 1997 Associated Professor at the Department of Mechanics, FME, CVUT in Prague
1997-present Full Professor at the Dept. of Mechanics, Biomechanics and Mechatronics, FME, CVUT in Prague
2000-2017 Secretary General of International Association of Vehicle System Dynamics
2014-present Dean of FME, CVUT in Prague

Prizes-Honours

The prize Česká hlava Project – for the best innovation (2003)

Areas of Scientific Activities

A.Computational mechanics of the multibody systems and robotics (kinematics, dynamics and control, parallel kinematical machines for manipulation and measurement), machine tools, vehicle dynamics.
B.Control, especially control of the nonlinear mechanical systems and robots, mechatronics/adaptronics., controlled vibration suppression, controlled stiffness.
C.Computational and knowledge support of the engineering design, artificial intelligence.

Selected Recent Publications

--Valasek, M., Marek, O., Olgac, N., Neusser, Z.: Rigorous treatment of wave-based control concept, structured procedures and critical observations, IET Control Theory And Applications, Volume: 13 Issue: 16 Page: 2620-2629 Published 2019
--Valasek, M., Olgac, N., Neusser, Z.: Real-time tunable single-degree of freedom, multiple-frequency vibration absorber, Mechanical Systems And Signal Processing, Volume: 133 Published: 2019
--Benes, P., Valasek, M., Sika, Z., Zavrel, J., Pelikan, J.: SHAVO control: the combination of the adjusted command shaping and feedback control for vibration suppression, Acta Mechanica, Volume 230 Issue 5 Page 1891-1905 Published 2019
--Li, W., Angeles, J., Valasek, M.: Contributions to the kinematics of pointing, Mechanism And Machine Theory, Volume 108 Page 97-109 Published 2017

--Neusser, Z., Vampola, T., Valasek, M.: Analytical gear mesh model using 3D gear geometry, Mechanika, Volume 23 Issue 3 Page 425-431 Published 2017
--Skopec, T., Sika, Z., Valasek, M.: Calibration using adaptive model complexity for parallel and fiber-driven mechanisms, Robotica, Volume 34 Issue 6 Page 1416-1435 Published 2016
--Prochazka, F., Valasek, M., Sika, Z.: Robust sliding mode control of redundantly actuated parallel mechanisms with respect to geometric imperfections, Multibody System Dynamics, Volume 36 Issue 3 Page 221-236 Published 2016
--Benes, P., Valasek, M.: Optimized Re-Entry Input Shapers, Journal Of Theoretical And Applied Mechanics, Volume 54 Issue 2 Page 353-368 Published 2016

Recent national patents

--Valasek, M.: A device for changing the dynamic stiffness of a gantry or overhanging structure, 308208, UPV 2019
--Valasek, M.: Method and equipment for handling flexible bodies, 307830, UPV 2019
--Valasek, M.; Storkan, J.: Device for controlling the spherical movement of a body, 308204, UPV 2018
--Valášek, M.; Steinbauer, P.; Šika, Z.: A method of controlling the damping force of a hydraulic shock absorber and a hydraulic shock absorber, 306644, UPV 2017
-- Valášek, M.; Steinbauer, P.; Šika, Z.: A hydraulic shock absorber, 306614, UPV 2017
-- Valášek, M.: A hydraulic shock absorber, 306693, UPV 2017
--Valášek, M.: A method of performing at least two consecutive operations on a machine tool, 307124, UPV 2017
-- Valášek, M.; Štorkán, J.: A method of controlling a spherical body motion, 306555, UPV 2017
-- Valášek, M.; Štorkán, J.: A device for controlling the spherical motion of a body, 306965, UPV 2017
-- Valášek, M.; Růžička, M.; Uher, O.; Smrž, M.; Svatoš, P.; Kukula, P.; Kašpárková, T.: Method of setting position of transfer arms on a supporting frame and transfer arms for gripping technological or measuring means, 306033, UPV 2016
--Valášek, M.; Smrž, M.; Šika, Z.; Uher, O.: Device to change rigidity of mechanical constructions, 306324, UPV 2016
--Valášek, M.; Štorkán, J.: Device to control spherical motion of bodies, 305471, UPV 2015
-- Valášek, M.; Vampola, T.; Steinbauer, P.; Moša, J.: Method of and device for tunable acoustic excitation of structures, 305282, UPV 2015

Recent International patents

--Valášek, M.; Štorkán, J.: Method of controlling spherical motion of a body, EP3310535B1, EPO 2019
--Valášek, M.; Štorkán, J.: A Device For Control of A Spherical Motion of A Body, EP3183098B1, EPO 2018
--Valášek, M.; Bauma, V.: Redundant Delta Manipulator, EP2732928B1, EPO 2018
--Valášek, M.; Zavřel, J.; Vích, J.; Pelikán, J.; Kašpárková, T.; Steinbauer, P.; Prda, T.; Musil, M.: An apparatus for opening and closing a lid pivotally connected to a frame, especially a car boot lid, CN105143721, China Patent 2017
--Valášek, M.: Device for a body's spherical motion control, US9364932, US patent office 2016
--Valášek, M.; Smrž, M.; Svatoš, P.; Kukula, P; Kašpárková, T.; Růžička, M.; Uher, O.: Supporting structure for repositionable and reconfigurable manipulating arms, US9358646, US patent office 2016

Citations, H-index, number of publications:

WoS: H-index=13, 656 citations, 440 without self citations, 58 papers in WoS impacted journals (Jimp)