Assoc. Prof. Luděk Hynčík, Ph.D.
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Nationality: Czech
Date of birth: 13 March 1975
Gender: Male
ORCID: https://orcid.org/0000-0001-6302-0517
ResearcherID: D-3923-2016

Academic appointments

Position and period:	**Adjunct Associate Professor** (since December 2023)
Responsibility:	Conducting joint research, preparing joint projects, supervising students, delivering lectures
Organization:	The University of Western Australia, 35 Stirling Hwy, Crawley WA 6009, Australia, https://www.uwa.edu.au
Position and period:	**Visiting Research Fellow** (August – October 2023)
Responsibility:	Conducting research in implementing computational injury biomechanics to healthcare, delivering lectures
Organization:	The University of Western Australia, 35 Stirling Hwy, Crawley WA 6009, Australia, https://www.uwa.edu.au
Position and period:	**Visiting Professor** (May 2022)
Responsibility:	Delivering lectures, planning possible joint projects and student exchange with ISML
Organization:	The University of Western Australia, 35 Stirling Hwy, Crawley WA 6009, Australia, https://www.uwa.edu.au
Position and period:	**Visiting Professor** (since 2019)
Responsibility:	Coordinating course “Introduction to numerical modelling”, supervising students, initiating and conducting R&D projects
Organization:	Tianjin University of Science and Technology, 13th St, Binhai Xinqu, Tianjin, China, 300457, http://www.tust.edu.cn
Position and period:	**Vice-Rector for Research and Development** (2019 – 2023)
Responsibility:	Coordinating research, development, innovation activities and transfer of knowledge
Organization:	University of West Bohemia, Univerzitní 8, 301 00 Pilsen, Czech Republic, http://www.zcu.cz/en
Position and period:	**Director of New Technologies – Research Centre** (2015 – 2019)
Responsibility:	Centre management and strategy, coordinating R&D, financing, HR, PR, IP
Organization:	University of West Bohemia, New Technologies – Research Centre, Univerzitní 8, 301 00 Pilsen, Czech Republic, https://www.ntc.zcu.cz/en
Position and period:	**Senior Researcher** (since 2014)
Responsibility:	Investigating R&D projects, supervising domestic and foreign students and postdocs
Organization:	University of West Bohemia, New Technologies – Research Centre, Univerzitní 8, 301 00 Pilsen, Czech Republic, https://www.ntc.zcu.cz/en
Position and period:	**Associate Professor** (since 2014)
Responsibility:	Coordinating courses “Modelling by MATLAB” and “Impact biomechanics”, lecturing courses “Mechanics” and “Theoretical Mechanics”, supervising bachelor, master and doctoral domestic and foreign students
Organization:	University of West Bohemia, Faculty of Applied Sciences, Univerzitní 8, 301 00 Pilsen, Czech Republic, https://www.fav.zcu.cz/en

Position and period:	**Head of Department of Human Body Modelling** (2011 – 2015) (now Department of Biomechanical Human Body Models)
Responsibility:	Preparing strategy, securing funding, HR, PR, IP, initiating and leading R&D projects
Employer:	University of West Bohemia, New Technologies – Research Centre, Univerzitní 8, 301 00 Pilsen, Czech Republic, https://www.ntc.zcu.cz/en
Position and period:	**Industrial Fellowship** (July – September 1997)
Responsibility:	Developing and applying biomechanical human body models
Organization:	ESI Group, Parc d'Affaires Silic, 99, rue des Solets, BP80112, 94513 Rungis CEDEX, France, https://www.esi-group.com

Impact outside academia

Position and period:	**Global Associate** (since 2020)
Responsibility:	Serving the global community for international networking and business
Organization:	Global Advisory Group, 607, Norwegian Spruce Drive, Mars, PA 16046, U.S.A, https://www.globaladvisorygrp.com
Position and period:	**Education Advisor** (since 2020)
Responsibility:	Supporting Vice President for Education by good practice to be shared among students, responsibility for student programs and student activities
Organization:	International Federation of Automotive Engineering Societies FISITA 29, M11 Business Link, Stansted, CM24 8GF, UK, http://www.fisita.com
Position and period:	**Vice President for Education** (2016 – 2020)
Responsibility:	Supporting students at all levels of education in the field of mobility/transport, responsibility for student programs and student activities
Organization:	International Federation of Automotive Engineering Societies FISITA 29, M11 Business Link, Stansted, CM24 8GF, UK, http://www.fisita.com
Position and period:	**Advisory Board Chair** (2008 – 2024)
Responsibility:	Supervising the operation, finance, and company focus on nonformal learning
Organization:	Techmania Science Center, U Planetária 2969/1, 301 00 Pilsen, Czech Republic, http://www.techmania.cz

Education

Level and period:	**Habilitation (doc., equivalent to Assoc. Prof.) in Mechanics** (2014)
Curriculum:	Impact biomechanics and computational methods
Organization:	University of West Bohemia, Faculty of Applied Sciences, Department of Mechanics, Univerzitní 8, 301 00 Pilsen, Czech Republic, Europe, https://www.kme.zcu.cz
Level and period:	**Ph.D. in Applied Mechanics** (1998 –2002)
Curriculum:	Biomechanics, multi-body mechanics, nonlinear continuum mechanics, smoothed particle hydrodynamics and computational methods
Organization:	University of West Bohemia, Faculty of Applied Sciences, Department of Mechanics, Univerzitní 8, 301 00 Pilsen, Czech Republic, Europe, https://www.kme.zcu.cz
Level and period:	**Erasmus Fellowship** (September 1996 – January 1997)
Curriculum:	Dynamics of mechanical systems, partial differential equations, finite element analysis, thermodynamics, curves and surfaces
University:	University of Hull, HU6 7RX, United Kingdom, https://www.hull.ac.uk
Level and period:	**Ing. (equivalent to MSc.) in Mathematical and Physical Engineering** (1993 – 1998)
Curriculum:	Applied mathematics, applied mechanics, computational mechanics
Organization:	University of West Bohemia, Faculty of Applied Sciences, Department of Mechanics Univerzitní 8, 301 00 Pilsen, Czech Republic, Europe, https://www.kme.zcu.cz

Other training and secondments

Level and period:	**Technology Transfer Manager – Junior / Senior** (October 2011 – May 2012)
Content:	Transfer of Knowledge, IPR, business companies
Organization:	OP VK "Knowledge and technology Transfer – Extending European Education Model 'Technology Transfer Manager' to Other Regions in the Czech Republic" (CZ1.07/2.4.00/17.0005); accredited by the Consortium EUKTS
Level and period:	**FP7 Financial and Project Manager** (October 2008)
Content:	FP7 projects development, financial and scientific controlling, reporting and audit preparation
Organization:	Europa Media PSC, Graphisoft Park building A, 7. Záhony street, H-1031 Budapest, Hungary
Level and period:	**Industrial Fellowship** (July – September 1997 followed by short stages till now)
Content:	Developing and applying biomechanical human body models
Organization:	ESI Group, Parc d'Affaires Silic, 99, rue des Solets, BP80112, 94513 Rungis CEDEX, France, https://www.esi-group.com

Language skills

Czech	Mother tongue		
English	Advanced	French	Beginner
German	Intermediate	Arabic	Beginner
Russian	Intermediate	Chinese	Beginner

Professional membership

Czech Society for Biomechanics (Vice President since 2020), http://www.csbiomech.cz/index.php/en

International Research Association on Emerging Automotive Technology (Academic Committee Member since 2019), Tianjin University of Science and Technology, China, https://www.tust.edu.cn

Czech Automotive Society (Vice President since 2014), http://www.cas-sae.cz/en

Visible Physiological Human (Member since 2022), http://www.vph-institute.org

Society of Automotive Engineers (Member since 2014), http://www.sae.org

Technical Committee for Biomechanical Engineering of International Federation for the Promotion of Mechanism and Machine Science (Member since 2014), http://www.iftomm.net

Czech Society for Mechanics (Secretary of the regional branch since 2010), https://www.csm.cz/en

Editorial boards

Member of Editorial board of Highlights of vehicles (since 2021), https://www.hos.pub/ho/vehicles

Member of Editorial board of International Journal of Automotive Innovation (since 2021), https://araijournal.com/index.php/arai

Guest editor of International Journal of Vehicle Safety (since 2018), https://www.inderscience.com/jhome.php?jcode=ijvs

Member of Editorial board of International Journal of Automotive Innovation (since 2018), https://www.springer.com/engineering/mechanical+engineering/journal/42154

Other experience

Member of Scientific Board of University of West Bohemia (since 2017), University of West Bohemia, Czech Republic, https://www.zcu.cz/en

Member of Scientific Board of Institute of Forensic Engineering (since 2021), Brno University of Technology, Czech Republic, https://www.vut.cz/en/usi

Chairman of International Evaluation Panel (since 2020), College of Polytechnics Jihlava, Czech Republic, http://en.vspj.cz

Member of working group TNK 755 for autonomous driving by Czech Standardization Agency (since 2020), http://www.agentura-cas.cz/?language=en

Member of Review committee in the doctoral study programme Applied sciences and informatics (since 2017), Faculty of Applied Sciences of the University of West Bohemia, Pilsen, Czech Republic, http://www.fav.zcu.cz/en

Member of Review committee of the doctoral study programme Physiology and Pathological Physiology (since 2016), Faculty of Medicine in Pilsen of the Charles University, Prague, Czech Republic, http://www.lfp.cuni.cz

Member of Research & Development Working Group at Ministry of Industry and Trade (since 2018), http://www.mpo.cz

Member of Expert Advisory Group to the Shadow Program Committee Marie Skłodowska-Curie Actions (since 2014), https://www.evropskyvyzkum.cz

Skills

Organisation skills:	Leadership, HR and project management expertise
Computer skills:	Windows OS including common software installation and use (Microsoft Office, Open Office, Gimp, LaTeX, MATLAB, Python, Hypermesh, VPS, Slicer)
Other skills:	Driving license for motorcycles, passenger cars, and tractors
Hobbies:	Travelling, photography, new technologies

Selected research projects

Pelvic Floor Evaluation Live Tracking – Real-time prediction of perineal trauma, PELVITRACK (2025 – 2029, HORIZON-EIC-2024-PATHFINDEROPEN-01-01, senior researcher for beneficiary University of West Bohemia, 296.250 EUR)

Development and Implementation of Waste Filled Crash Boxes for Crashworthiness Performance Improvement of Heavy Trucks (2023 – 2024, Royal Academy of Engineering, TSP-2324-6\210, Transforming Systems through Partnership (Jordan, South Africa, Thailand), project leader for beneficiary University of West Bohemia, 5.000 GBP)

Radical Improvement of road safety in low- and medium-income countries in Africa, TRANS-SAFE (2022 – 2025, HORIZON-CL5-2021-D6-01-11, project leader for beneficiary University of West Bohemia, 75.000 EUR)

Supporting biomechanical activities at the University of West Bohemia (2019 – 2022, John H. & Amy Bowles Lawrence Foundation, project leader, 67.000 USD)

Application of modern technologies in medicine and industry, AMTMI (2018 – 2022, Ministry of Education, Youth and Sports of the Czech Republic project no. CZ.02.1.01/0.0/0.0/17_048/0007280, project leader for New Technologies – Research Centre, 1.070.245 EUR[1])

Scientific and technical innovations for safer Powered Two Wheelers (PTW), Safe2Wheelers (2015 – 2019, COST Action TU1407, project Vice-Chair, 16.410 EUR)

Motorcycle Rider Integrated Safety, MOTORIST (2014 – 2018, FP7 People project no. 608092, project leader for beneficiary University of West Bohemia, 305.798 EUR)

Development of Vehicle Active Bonnet System Regarding Variability of Population and Implementing Biomechanical Model Human Body (2014 – 2017, Technology Agency of the Czech Republic project no. TA04030689, project leader for partner University of West Bohemia, 95.844 EUR[2])

[1] Funding granted in the Czech Crowns (CZK), the exchange rate is averaged over the project duration from European Central Bank.
[2] Funding granted in the Czech Crowns (CZK), the exchange rate is averaged over the project duration from European Central Bank.

Use of sensors for increasing the care of an ageing and handicapped population (2014 – 2015, Technology Agency of the Czech Republic project no. TD020094, project leader, 57.868 EUR[2])

Scalable human models for increasing traffic safety (2011 – 2013, Technology Agency of the Czech Republic project no. TA01031628, project leader for partner University of West Bohemia, 193.637 EUR[2])

New Technologies and Materials Center, CENTEM (2010 – 2014, Ministry of Education, Youth and Sports of the Czech Republic project no. CZ.1.05/2.1.00/03.0088, executive director, 12.551.863 EUR[2])

Development of a Finite Element Model of the Human Thorax and Upper Extremities, THOMO (2009 – 2012, FP7 project no. 218643, project leader for partner University of West Bohemia, 209.872 EUR)

Increasing passive safety of vulnerable road users in the Czech population (2009 – 2010, Ministry of Transportation of the Czech Republic project no. CG911-044-150, project leader, 109.868 EUR[2])

Motorcycle and Motorcyclist Safety, MYMOSA (2006 – 2010, FP6 Marie Curie project no. MRTN-CT-2006-035965, project leader for partner University of West Bohemia, 169.086 EUR)

Safety in Motion, SIM (2006 – 2009, FP6 STREP project no. FP6-031348, project leader for partner University of West Bohemia, 31.147 EUR)

Advanced Protective Systems, APROSYS (2005 – 2009, FP6 Integrated Project no. FP6-PLT-506503, project leader for partner University of West Bohemia, 26.351 EUR)

Advanced Passive Safety Network, APSN (2004 – 2008, FP6 Network of Excellence project no. TNE3-CT-2003-506257, project leader for partner University of West Bohemia, 20.192 EUR)

Selected research outputs

Moura R., Oliveira D. A., Parente M. P.L., Kimmich N., **Hynčík L.**, Hympánová L. H., Jorge R. M. N., 2024. Patient-specific surrogate model to predict pelvic floor dynamics during vaginal delivery. Journal of the Mechanical Behavior of Biomedical Materials 160. https://doi.org/10.1016/j.jmbbm.2024.106736.

Mokhtar A. A., **Hyncik L.**, 2024 A comprehensive review of human body model in different crash scenarios: active and passive models. International Journal of Crashworthiness, 1-13. https://doi.org/10.1080/13588265.2024.2352242.

Hynčík, L., 2024. Application of Smoothed Particle Hydrodynamics to a Ballistic Gelatine Sample High-Speed Impact. In: Wittek, A., Kobielarz, M., Babu, A.R., Nash, M.P., Nielsen, P.M.F., Miller, K. (eds) Computational Biomechanics for Medicine. MICCAI 2023. Lecture Notes in Bioengineering. Springer, Cham. https://doi.org/10.1007/978-3-031-64632-4_7.

Hynčík L., Čechová H., Jansová M., Lv W., Hájková Hympánová L., Krofta L., 2023. In silico prediction of maximum perineal muscle strain during vaginal delivery by design of experiment. Computer Methods and Programs in Biomedicine 242:107835. https://doi.org/10.1016/j.cmpb.2023.107835.

Bońkowski T., **Hynčík L.**, 2023. A helmet with a multi-directional suspension system and a helmet assembly procedure. Czech Republic Patent No. 309734.

Hynčík L., Talimian A., Vychytil J., Kleindienst J., Gharbi S., Ziazopoulos P., 2023. Injury Assessment in Non-Standard Seating Configurations in Highly Automated Vehicles Using Digital Twin and Active Learning. SAE Technical Paper 2023-01-0006. https://doi.org/10.4271/2023-01-0006.

Hynčík L., Čechová H., Havelková L., Jansová M., Krofta L., Němec M., Kališ V., 2022. Reduced Order Model for Prediction of Successful Course of Vaginal Delivery. In F. Chinesta (Ed.). Reduced Order Models for the Biomechanics of Living Organs. Academic Press, 2023, 327-348, ISSN 25890999, ISBN 9780323899673.

Špička J., **Hynčík L.**, Jansová M., Talimian A., 2022. Assessment of Abdominal Loading to Pregnant Model Setup during Vehicle Frontal Impact for Different Lap Belt Positions. SAE Technical Paper 2022-01-0847. https://doi.org/10.4271/2022-01-0847.

Čechová H., Kalis V., Havelková L., Rusavy Z., Fiala P., Rybárová M., **Hynčík L.**, Krofta L. and Ismail K. M., 2021. Finite element modeling of maximum stress in pelvic floor structures during the head expulsion (FINESSE) study. International Urogynecology Journal 32: 1997-2003. https://doi.org/10.1007/s00192-021-04769-z.

Bońkowski T., **Hyncik L.**, Lv W., 2020. PTW Passive Safety: Numerical Study of Standard Impact Scenarios with Rider Injury Risk Assessment. SAE Technical Paper 2020-01-0930, https://doi.org/10.4271/2020-01-0930.

Čechová H., Kleisner V., **Hynčík L.**, Kovář L. 2013 Software for scaling human model in VE. Authorized software implemented in commercial computational environment.