



PERSONAL INFORMATION

Gherman Bogdan-George


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 Bogdan.GHERMAN@mep.utcluj.ro

Sex: Male| Date of birth 22/03/1980| Nationality: Romanian

WORK EXPERIENCE

2019 – present

Associate Professor

Technical University of Cluj-Napoca

Faculty of Machine Building, Department of Mechanical Engineering Systems

Researcher in the Research Center for Industrial Robots Simulation and Testing

CESTER

- Teaching activities for the disciplines: Computer Programming I and II, Object Oriented Programming and Client-Server Architectures, Medical and Service Robots
- Research activities in national and international research grants

2013 – present

Lecturer

Technical University of Cluj-Napoca

Faculty of Machine Building, Department of Mechanical Engineering Systems

Researcher in the Research Center for Industrial Robots Simulation and Testing

CESTER

- Teaching activities for the disciplines: Computer Programming I and II, Object Oriented Programming and Client-Server Architectures
- Research activities in national and international research grants

2011 – 2013

Teaching Assistant

Technical University of Cluj-Napoca

Faculty of Machine Building, Department of Mechanical Engineering Systems

Researcher in the Research Center for Industrial Robots Simulation and Testing

CESTER

- Teaching activities for the disciplines: Computer Programming I and II and Mechanics I and II
- Research activities in national and international research grants

2007-2011

Junior Researcher

Technical University of Cluj-Napoca

Faculty of Machine Building, Department of Mechanical Engineering Systems

Researcher in the Research Center for Industrial Robots Simulation and Testing

CESTER

- Research activities in national and international research grants
- Teaching activities for the disciplines: Computer Programming I

2004 – 2008

Design engineer

SC Caval SA str Scortarilor, nr. 12, Cluj Napoca, jud. Cluj, Romania

Design activities for metal products and furniture accessories

EDUCATION AND TRAINING

2007-2011	PhD in Mechanical Engineering Technical University of Cluj-Napoca Faculty of Machine Building, Departament of Mechanical Engineering Systems PhD thesis title: Researches concerning the development of kinematic, dynamic and functional models designed to an innovative hybrid parallel robot structure for the minimally invasive surgery	EQF Level 8
2002-2007	Dipl. Engineer Technical University of Cluj-Napoca Faculty of Machine Building, Departament of Mechanical Engineering Systems Competences: Mechanical Systems Design, CAD, Industrial robots control, Robotic systems simulation, Flexible production systems simulation	EQF Level 6
2004-2005	MSc in Economics Babeș-Bolyai University of Cluj-Napoca, Specialization: Economics and Information-Technology	EQF Level 7
1999-2004	Economist Babeș-Bolyai University of Cluj-Napoca, Specialization: Economics and IT	EQF Level 6

PERSONAL SKILLS

Mother tongue Româna

Other language(s)	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	C1 – Proficient user	C1 – Proficient user	C1 – Proficient user	C2 – Proficient user	C1 – Proficient user
French	A2 - Basic user	A2 - Basic user	A2 - Basic user	A2 - Basic user	A2 - Basic user
Italian	A2 - Basic user	A2 - Basic user	A2 - Basic user	A2 - Basic user	A2 - Basic user

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
Common European Framework of Reference for Languages

Communication skills Excellent communication abilities as a result of:

- 12 years of experience in teaching
- 10 years of experience as course titular
- 15 years of experience as member of CESTER team, including participations at conferences, workshops, research grants

Organisational / managerial skills Organisational / managerial skills :

- Coordinator for research grants
- Member in organization committees of conferences
- Year tutor (2 years, Mechanical Engineering specialization)
- Student Practice Coordinator
- Member in the Bachelor's Board of Inquiry
- Elaboration of multiple national and international project proposals

Job-related skills Teaching skills: main author, respectively co-author in two courses (books) and three laboratory courses
Research skills: member in over 15 research national and international research grants and over 80 published papers in international databases.

Digital skills Java, C, C++, PHP, Visual Basic, Matlab, MSC Adams, MathCAD, Solid Edge, Siemens NX, SolidWorks, AutoCAD, Corel DRAW, Latex

Driving licence B

ADDITIONAL INFORMATION

Scientific activity (entire career)

Published books: 2

Published papers in ISI journals, SCI journals, national and international conferences and congresses: over 80

Member in national and international research grants: over 20

Research grants coordinator: 2

Representative publications (10 ISI articles)

1. Tohanean N, Tucan P, Vanta O-M, Abrudan C, Pinteș S, **Gherman B**, Burz A, Banica A, Vaida C, Neguran DA, Ordog A, Tarnita D, Pislă D. The Efficacy of the NeuroAssist Robotic System for Motor Rehabilitation of the Upper Limb—Promising Results from a Pilot Study. *Journal of Clinical Medicine*; 12(2):425. <https://doi.org/10.3390/jcm12020425>, 2023
2. Tucan, P.; Vaida, C.; Horvath, D.; Caprariu, A.; Burz, A.; **Gherman, B.**; Iakab, S.; Pislă, D. Design and Experimental Setup of a Robotic Medical Instrument for Brachytherapy in Non-Resectable Liver Tumors. *Cancers*, 14, 5841. <https://doi.org/10.3390/cancers14235841>, 2022
3. Pislă, D.; Bîrlescu, I.; Crisan, N.; Pusca, A.; Andras, I.; Tucan, P.; Radu, C.; **Gherman, B.**; Vaida, C. Singularity Analysis and Geometric Optimization of a 6-DOF Parallel Robot for SILS. *Machines*, 10, 764. <https://doi.org/10.3390/machines10090764>, 2022
4. Pislă, D., Bîrlescu, I., Pusca, A., Tucan, P., **Gherman, B.**, Vaida, C., Kinematics and Workspace Analysis of an Innovative 6-Dof Parallel Robot for SILS, *Proceedings of the Romanian Academy, Series A*, Vol. 23(3), 2022, pp.277-286, 2022
5. Tarnita D, Geonea ID, Pislă D, Carbone G, **Gherman B**, Tohanean N, Tucan P, Abrudan C, Tarnita DN. Analysis of Dynamic Behavior of ParReX Robot Used in Upper Limb Rehabilitation. *Applied Sciences*; 12(15):7907. <https://doi.org/10.3390/app12157907>, 2022
6. **Gherman B**, Hajjar NA, Tucan P, Radu C, Vaida C, Mois E, Burz A, Pislă D. Risk Assessment-Oriented Design of a Needle Insertion Robotic System for Non-Resectable Liver Tumors. *Healthcare*; 10(2):389. <https://doi.org/10.3390/healthcare10020389>, 2022
7. Major, Z.Z.; Vaida, C.; Major, K.A.; Tucan, P.; Brusturean, E.; **Gherman, B.**; Bîrlescu, I.; Crăciunaș, R.; Ulinici, I.; Simori, G.; Banica, A.; Pop, N.; Burz, A.; Carbone, G.; Pislă, D. Comparative Assessment of Robotic versus Classical Physical Therapy Using Muscle Strength and Ranges of Motion Testing in Neurological Diseases. *J. Pers. Med.*, 11, 953. <https://doi.org/10.3390/jpm11100953>, 2021
8. Pislă D, Nadas I, Tucan P, Albert S, Carbone G, Antal T, Banica A, **Gherman B. (c.a.)**: Development of a Control System and Functional Validation of a Parallel Robot for Lower Limb Rehabilitation. *Actuators*. 10(10):277. <https://doi.org/10.3390/act10100277>, 2021
9. Pislă D, Tarnita D, Tucan P, Tohanean N, Vaida C, Geonea ID, **Bogdan G**, Abrudan C, Carbone G, Plitea N. A Parallel Robot with Torque Monitoring for Brachial Monoparesis Rehabilitation Tasks. *Applied Sciences*; 11(21):9932. <https://doi.org/10.3390/app11219932>, 2021
10. Major ZZ, Vaida C, Major KA, Tucan P, Simori G, Banica A, Brusturean E, Burz A, Crăciunaș R, Ulinici I, Carbone G, Gherman B, Bîrlescu I, Pislă D. The Impact of Robotic Rehabilitation on the Motor System in Neurological Diseases. A Multimodal Neurophysiological Approach. *International Journal of Environmental Research and Public Health*; 17(18):6557. <https://doi.org/10.3390/ijerph17186557>, 2020

International Research projects (excerpt)

1. A Seniors Digital Platform for Knowledge Transfer towards Industrial Companies – WisdomOfAge, funded by AAL Programme, AAL-2020-7-83-CP, 2021-2023, Position: Member
2. Manipulation Systems for Sample Handling in a Sample Receiving Facility”, TASUK /16/11305/NBO/1424, ESA-European Space Agency, 2018-2020, Position: Member
3. Innovative robotic system for cancer treatment – Heal4Liv, Financed by the European Institute of Innovation and Technology (EIT-Health), 2020, Position: Director
4. An innovative robotic system for upper limb rehabilitation – InnoHealth, Financed by the European Institute of Innovation and Technology (EIT-Health), 2019, Position: Member
5. Creative Alliance in Research and Education focused on Medical and Service Robotics, IZ74Z0_13736, Scopes International IP Grant, 2011-2014, Position: Member

National Research Grants (excerpt)

1. Exoskeletal system for human augmentation – MAN-X, 1-PSCD/2022, Sectorial Research and Development Plan, National Defense Ministry, 2022-2025, Position: Member
2. An innovative modular rehabilitation robot for the efficient therapy of lower limb motor deficit – Hope2Walk, UEFISCDI, Project code: PN-III-P2-2.1-PED2021-343, 2022-2024, Position: Member
3. Innovative safe robotic system for enhanced patient-centered treatment of liver cancers – ENHANCE, UEFISCDI Project code: PN-III-P2-2.1-PED2021-2790, 2022-2024, Position: Member
4. An innovative modular robotic system for the rehabilitation of brachial monoparesis – NeuroAssist, UEFISCDI, Project code: PN-III-P2-2.1-PED2019-3022, 2020-2022, Position: Member
5. Innovative robotic guided instruments for the treatment of malignant tumors – OnTarget, UEFISCDI, Project code: PN-III-P2-2.1-PED2019-4375, 2020-2022, Position: Member
6. New frontiers in robotic assisted single port surgery: a novel robotic system with dexterous instruments – Challenge, UEFISCDI, Project code: PN-III-P4-ID-PCE-2020-0572-PCE-171, 2021-2023, Position: Member
7. High accuracy innovative approach for the robotic assisted intraoperative treatment of hepatic tumors based on imagistic-molecular diagnosis – IMPROVE, PCCDI49, 2018-2020, Position: Member
8. Innovative Approaches Regarding Rehabilitation and Assistive Robotics for Healthy Ageing – AgeWell, POC, 20/01.09.2016, 2016-2020, Position: Member
9. A multi-purpose needle insertion device for the diagnosis and treatment of cancer – ACCURATE, PN-II-RU-TE-2014-4-0992, 2015-2017, Position: Member
10. Robotic assisted prostate biopsy, a high precision innovative method – ROBOCORE, UEFISCDI, Project code: PN-II-PT-PCCA-2013-4-0647, Position: Member

- Patents
1. Plitea, N., Pislă, D., Vaida, C., Gherman, B.: Surgical Robot. RO-126271, Romania (2012).
 2. Vaida, C., Plitea, N., Pislă, D., Gherman, B., Suciu, M.: Orientation module with modular structure and multiple bends, RO-129923, Romania (2019).
 3. Vaida, C., Plitea, N., Pislă, D., Gherman, B., Ulinici, I., Pislă, A., Carbone, G. : Spherical Robot for the medical rehabilitation of the proximal area of the upper limb, RO-132233/30.03.2020.
 4. Plitea, N., Pislă, D., Vaida, C., Gherman, B., Ulinici, I., Carbone, G., Robot sferico per il recupero riabilitativo della spalla, International Patent, classification A61H1, No. 102018000006216, Italian Office of Patents and Trademarks, 13.07.2020
 5. Gherman, B., Pislă, D., Plitea, N., Vaida, C., Pislă, A., Banica, A., Carbone, G.: Parallel Robotic system for the medical rehabilitation of the upper limb, RO -132234/30.03.2020
 6. Pislă, D., Birlescu, I., Vaida, C., Gherman, B., Tucan, P., Plitea, N. Parallel robot for lower limb rehabilitation, RO-133814/29.10.2021
 7. Pislă, D., Gherman, B., Nadas, I., Pop, N., Craciun, F., Tucan, P., Vaida, C., Carbone, G., Birlescu, I., Plitea, N. Innovative parallel robot for lower limb rehabilitation, RO-133815/29.10.2021

Honours and awards

The **Prize of the National Education Ministry** for the Invention Parallel robot for brachytherapy with two kinematic guiding chains of the platform (the needle) type CYL-U, 2014

The **Special Prize of STATE OFFICE FOR INVENTIONS AND TRADEMARKS** – OSIM, for the invention Surgical robot, 2014

The Grand prize of the Romanian Inventors Forum – PROINVENT 2019, Cluj-Napoca;

The Grand prize of the Technical University of Cluj-Napoca – PROINVENT 2019, Cluj-Napoca;

WIIPA Special Award – IPITEx 2019 Bangkok, Thailand;

TISIAS Special Honour of Innovation – IPITEx 2019 Bangkok, Thailand;

Certificate of Appreciation from the Indian Inovators Association – IPITEx 2019 Bangkok, Thailand;

Gold Medal from the National Research Council of Tailand – IPITEx 2019 Bangkok, Thailand.

Gold Medal at the AsianInvent, Singapore 2020, for the patent RO-129923.

Best paper award: Carbone G., Gherman B., Ulinici I., Vaida C., Pislă D.: Design Issues for an Inherently Safe Robotic Rehabilitation Device, International Conference on Robotics in Alpe-Adria Danube Region, AAD 2017: Advances in Service and Industrial Robotics pp 1025-1032, 2017

Affiliations

Robotics Society of Romania , SR

Mechanisms and Machine Science Romanian Association, ARoTMM

International Federation for the Promotion of Mechanism and Machine Science, IFToMM

Assoc Prof. dr.-ing. Bogdan GHERMAN



09.01.2023