



Europass Curriculum Vitae

Personal information

First name(s) / Surname(s) **CĂLIN / VAIDA**

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Nationality Romanian

Date of birth March, 1, 1980

Gender male

Occupational field **EDUCATION AND RESEARCH**

Work experience

Dates	2020-present
Occupation or position held	Full professor and PhD coordinator at the Technical University of Cluj-Napoca, Department of Engineering of Mechanical Systems
Main activities and responsibilities	Teaching activities in robotics, computer programming, research activities in Robotics and mechatronics, Computer and simulation techniques, Kinematics and dynamics of parallel robots, Surgical robots, Robotic systems for cancer diagnosis and treatment, Medical rehabilitation
Name and address of employer	Technical University of Cluj-Napoca, Memorandumului, 28, RO-400114 Cluj-Napoca, Romania, www.utcluj.ro
Type of business or sector	Education and research
Dates	2009-2020
Occupation or position held	Lecturer (2014) and Associate professor (2020) at the Technical University of Cluj-Napoca, Department of Engineering of Mechanical Systems
Main activities and responsibilities	Teaching activities in robotics, computer programming, research activities in Robotics and mechatronics, Computer and simulation techniques, Kinematics and dynamics of parallel robots, Surgical robots, E-learning platforms and simulators for medicine
Name and address of employer	Technical University of Cluj-Napoca, Memorandumului, 28, RO-400114 Cluj-Napoca, Romania, www.utcluj.ro
Type of business or sector	Education and research

Dates	2004
Occupation or position held	Scientific researcher at the Friedrich Alexander Erlangen Nuremberg University, within the department of Quality Management and Manufacturing Metrology, prof. Albert Weckenmann.
Main activities and responsibilities	Research activities in Robotics and mechatronics, Computer and simulation techniques, Kinematics and dynamics of parallel robots for applications in medicine.
Name and address of employer	Friedrich Alexander Erlangen Nuremberg University, Nuremberg, Germany
Type of business or sector	Research
Dates	2003-2016
Occupation or position held	Technical Manager at S.C. MOCSENA Ltd., private company focused on R&D activities
Main activities and responsibilities	Managing the activities in the development of hydraulic systems
Name and address of employer	S.C. MOCSENA Ltd. Alexandru Vlahuta Str., Cluj-Napoca, Romania
Type of business or sector	Research and production
Education and training	
Dates	2019
Principal subjects/occupational skills covered	Mechanical engineering, medical robotic devices
Title of qualification awarded	Habilitation in mechanical engineering , MEN order 4109/28.05.2019
Dates	2010-2013
Principal subjects/occupational skills covered	Postdoctoral scholarship at the Technical University of Cluj-Napoca, Department of Engineering of Mechanical Systems Postdoctoral research topic: Development of intelligent robotic systems with enhanced dexterity with applications in minimally invasive techniques
Dates	2005-2009
Title of qualification awarded	PhD
Principal subjects/occupational skills covered	Research in Robotics and Mechanical Engineering PhD thesis title: Contributions to the Development and Kinematic - Dynamic Modeling of Parallel Robots for Minimally Invasive Surgery
Name and type of organisation providing education and training	Technical University of Cluj-Napoca, Memorandumului, 28, RO-400114, Cluj-Napoca, Romania, www.utcluj.ro
Dates	1998-2003
Title of qualification awarded	Engineer (5 years) – Bachelor and Master, Graduated First in the Class Specialization: Industrial Robots and Flexible Manufacturing Systems in English
University	Technical University of Cluj – Napoca, Romania, Faculty of Machine Building

Personal skills and competences

Mother tongue(s) **Romanian**

Other language(s)

English
French
German

Self-assessment

European level ()*

English

French

German

Understanding				Speaking				Writing	
Listening		Reading		Spoken interaction		Spoken production			
C2	Proficient user	C2	Proficient user	C2	Proficient user	C2	Proficient user	C2	Proficient user
B2		B2		B1		B1		B1	
A2		A2		A1		A1		A1	

(*) [Common European Framework of Reference for Languages](#)

Social skills and competences

Team spirit, communicative, solidarity, honesty, correctitude, responsibility, dynamism

Organisational skills and competences

Good organiser and manager, education and research abilities, problem-solving-attitude, ability to respect deadlines for project activities

Technical skills and competences

Kinematic and dynamic modelling of robots, programming of robots and mechanical systems, CAD of robots, engineering design, command and control of industrial robots.

Computer skills and competences

Programming: Matlab, C, C++, Visual Basic,
CAD/CAM: Siemens package: NX, Solid Edge – Velocity Series, AutoCAD
Office tools: MS Office, Corel DRAW, Latex
Automation: B&R Automation Studio
Easily adapts to new technologies/software

Artistic skills and competences

Fishing, hiking, swimming

Other skills, competences and diplomas

2011 – Specialization Diploma in industrial automation – real time control, at B&R Automation, Eggelsberg, Austria
2010 – Diploma of graduation in Siemens NX CAD/CAM modules

Driving licence

Driving licence category B since 2000

Additional information

Scientific activity (entire career)
Published books: 4
Editor: 2 books in Springer
Published papers in ISI journals, SCI journals, national and international conferences and congresses: over 120
Member in national and international research grants: over 30
Research grants coordinator: 7

Publications **Papers published in ISI and BDI journals and at international and national conferences (10 relevant publications)**

1. Tucan, P.; **Vaida, C. (c.a.)**; 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* 2022, 14, 5841. <https://doi.org/10.3390/cancers14235841>
2. Pislă, D.; Birlescu, 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* 2022, 10, 764. <https://doi.org/10.3390/machines10090764>
3. Pislă, D., Birlescu, 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
4. Major, Z.Z.; **Vaida, C. (c.a.)**; Major, K.A.; Tucan, P.; Brusturean, E.; Gherman, B.; Birlescu, I.; Craciunaș, 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.* 2021, 11, 953. <https://doi.org/10.3390/jpm11100953>
5. Major, Z.Z.; **Vaida, C.**; Major, K.A.; Tucan, P.; Simori, G.; Banica, A.; Brusturean, E.; Burz, A.; Craciunas, R.; Ulinici, I.; Carbone, G.; Gherman, B.; Birlescu, I.; Pislă, D. *The Impact of Robotic Rehabilitation on the Motor System in Neurological Diseases. A Multimodal Neurophysiological Approach*. *Int. J. Environ. Res. Public Health* 2020, 17, 6557. <https://doi.org/10.3390/ijerph17186557>
6. **Vaida, C.**, Birlescu, I., Pislă, A., Ulinici, I., Tarinita, D., Carbone, G., Pislă, D.: *Systematic Design of a Parallel Robotic System for Lower Limb Rehabilitation*, IEEE ACCESS, vol. 8, 34522(15), 2020, [10.1109/ACCESS.2020.2974295](https://doi.org/10.1109/ACCESS.2020.2974295)
7. Pislă, D., **Vaida, C. (c.a.)**, Birlescu, I., Hajjar, N.A., Gherman, B., Plitea, N.: *Risk Management for the Reliability of Robotic Assisted Treatment of Non-resectable Liver Tumors*, Applied Sciences, vol. 10(1), 52, 2020, <https://doi.org/10.3390/app10010052>
8. Birlescu, I.; Husty, M.; **Vaida, C.**; Gherman, B.; Tucan, P.; Pislă, D. *Joint-Space Characterization of a Medical Parallel Robot Based on a Dual Quaternion Representation of SE(3)*. *Mathematics* 2020, 8, 1086. <https://doi.org/10.3390/math8071086>
9. Birlescu, I., Husty, M., **Vaida, C.**, Plitea, N., Nayak, A., Pislă, D.: *Complete Geometric Analysis Using the Study SE (3) Parameters for a Novel, Minimally Invasive Robot Used in Liver Cancer Treatment*, *Symmetry*, vol. 11(12), 2019, <https://doi.org/10.3390/sym11121491>
10. Husty, M., Birlescu, I., Tucan, P., **Vaida, C.**, Pislă, D.: *An algebraic parameterization approach for parallel robots analysis*, *Mechanism and Machine Theory*, vol. 140, pp. 245-257, 2019, <https://doi.org/10.1016/j.mechmachtheory.2019.05.024>

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: technical coordinator
3. Innovative robotic system for cancer treatment – **Heal4Liv**, Financed by the European Institute of Innovation and Technology (EIT-Health), 2020, Position: member
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
6. Mathematical modeling and experimental researches for the development of a modular parallel robot for minimally invasive surgery. Duration: 2006-2011, Financed by: Alexander von Humboldt Foundation, 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: Technical responsible
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: Coordinator
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: Coordinator
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: Scientific coordinator project 1
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: Coordinator
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., Suci, 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

Awards, Distinctions, Invited lectures

“Traian Vuia” Prize of the Romanian Academy for Innovation in medical parallel robots, December 2022

Research Excellence Distinction, Technical University of Cluj-Napoca, 2015

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;

Over 30 Gold Medals at National Fares and Symposia for the awarded patents, in Cluj, Iasi, Timisoara, Bucharest.

International Awards

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;

Gold Medal at the iCAN 2021 (Toronto, Canada) for the patent RO-132233;

Gold Medal at the iCAN 2022 (Toronto, Canada) for the patent RO-133814;

Gold Medal at the IITE 2022 (London, Great Britain) for the patent RO-133814.

Invited lecturer

Innovative Approaches in Medical Robotics Innovative, within the conference Ideas in Science, Baia Mare, Romania, 2018

Testing Capacity for Space Technology Suppliers, within the 2nd International Exploratory Workshop New Trends in Medical and Service Robots, Belgrade, Serbia, 2014

Development of New Parallel Robots for Minimally Invasive surgery, within the international workshop organized within the framework of the Humboldt foundation, by the Technical Universities of Cluj-Napoca (Romania) and Braunschweig (Germany), Cluj-Napoca, Romania, 2012

Development of new parallel robots for minimally invasive surgery, Within the International Workshop on Laparoscopic Liver Surgery, Cluj-Napoca, Romania, 2008

Professional Associations

Member of the Romanian Association of Mechanism and Machine Science -ARoTMM

Member of the Romanian Society of Robotics - SRR

Member of International Federation for the Promotion of Mechanism and Machine Science -IFTToMM

Member of International Association of Applied Mathematics and Mechanics – GAMM

I hereby certify that the above statements are true.

Date 07.01.2023

Dr.-Ing. Calin VAIDA