


PERSONAL INFORMATION

Nicolae Plitea

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Sex Male Date of birth 12/02/1939 | Nationality Romania

WORK EXPERIENCE

- 2001–Present **Key member within CESTER (Research Center for Industrial Robots Simulation and Testing)**
Technical University of Cluj-Napoca, Cluj-Napoca (Romania)
The main research activities of CESTER are focused on the development of parallel robots in different domains: robots for medical applications (surgery, oncology, rehabilitation), industrial applications, reconfigurable robots, microrobots and service robots.
- 1990–Present **Full professor**
Technical University of Cluj-Napoca, Cluj-Napoca (Romania)
Teaching activities in mechanics, research activities in robotics and mechatronics kinematics and dynamics of parallel robotic structures, mini and micro-robots, medical robots,
PhD supervisor between 1993-2012 Domain: Mechanical Engineering
- 1979–1990 **Associate professor**
Technical University of Cluj-Napoca, Cluj-Napoca (Romania)
Teaching activities in mechanics research activities in robotics and mechatronics, kinematics and dynamics of parallel and serial robotic structures, mini and micro-robots
- 1971–2079 **Lecturer**
Technical University of Cluj-Napoca, Cluj-Napoca (Romania)
Teaching activities in mechanics, research activities in robotics and mechatronics, kinematics and dynamics of parallel and series robotic structures
- 1964–1971 **Assistant professor**
Technical University of Cluj-Napoca, Cluj-Napoca (Romania)
Teaching activities in mechanics and mechanism theory, research activities in robotics and mechatronics

EDUCATION AND TRAINING

- 1971 **PhD Title**
Polytechnic Institute of Iasi, Iasi (Romania)
Technical Mechanics

1957–1962 **Mechanical engineer**
 Technical University of Cluj-Napoca, Cluj-Napoca (Romania)
 Specialization: Manufacturing Engineering

PERSONAL SKILLS

Mother tongue(s) Romanian

Foreign language(s)

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
German	C1	C1	C1	C1	C1
English	B2	B2	B2	B2	B2

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

Communication skills Team spirit, communicative, solidarity, honesty, fairness, responsibility, dynamism

Organisational / managerial skills Good organizer and manager, education and research abilities, problem-solving-attitude, ability to respect deadlines for project activities

Job-related skills Competences in kinematic and dynamic modelling of robots, programming of robots and mechanical

Driving licence B

ADDITIONAL INFORMATION

Scientific Publications Over 50 papers published in ISI indexed journal, over 150 papers published at International Conferences and indexed journals
 H Index: 12 (Web of Science), 15 (Scopus), 20 (Google Scholar)

Projects National and international research grants: over 30
 Research grants coordinator: 5

Memberships Member of the Romanian Society of Robotics 1980-2014
 Member of the Romanian Association of Machine and Mechanism Theory (AroTMM)
 Member of International Federation for the Promotion of Mechanism and Machine Science (IFTToMM) since 1998
 Member of EURobotics, <http://eu-robotics.net>

Honours and awards Award of Technologic Transfer of Commerce and Industry Chamber Braunschweig, 12.11.2001 for invention :Parallel structure machine-tools for spherical mirror cutting in automotive industry. , HEGLA, Germany, Patent DE 197.57.183.C1, 29.07.1999.
 Honorary diploma from Technical University of Cluj-Napoca for special contributions in scientific activity, 2004.
 Order of Merit for Education in the rank of Commander, Presidential Decree no. 1097 from 10/12/2004, Published in the Official Gazette, Part I no. 1181 of 13/12/2004 regarding the conferment of the Order and Medal of Merit for Education.

Merit Allowance, for outstanding results in the field of science, granted by the Ministry of Education, 2009.

Special Award at the International Saloon on Inventions, Research, Innovation and Technology Transfer, INVENTICA 2014, offered by the Office of State for Inventions and Trademarks (OSIM), 2014.

Parallel brachytherapy robot with two kinematic chains guiding the platform (needle), de tip CYL-U, Gold Medal at The XVIIIth International Exhibition of Research, Innovation and Technological Transfer, Inventica 2014, Iasi, Romania, July 2-4, 2014

Publications (Detailed)

Scientific publications (over 130 indexed papers)

Excerpt (5 relevant publications in the last years)

1. Pisla, D., Vaida, C., 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 (ISI Journal Impact factor 2.679)

2. Tucan, P., Vaida, C., Ulinici, I., Banica, A., Burz, A., Pop, N., Birlescu, I., Gherman, B., **Plitea, N.**, Antal, T., Carbone, G., Pisla, D.: Optimization of the ASPIRE Spherical Parallel Rehabilitation Robot Based on Its Clinical Evaluation, International journal of environmental research and public health 2021, vol. 18(6), 3281, 2021 (ISI Journal Impact factor 3.39).

3. Birlescu, I., Husty, M., Vaida, C., **Plitea, N.**, Nayak, A., Pisla, 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

4. Tucan, P., Vaida, C., **Plitea, N.**, Pisla, A., Carbone, G., Pisla, D.: Risk-Based Assessment Engineering of a Parallel Robot Used in PostStroke Upper Limb Rehabilitation, Sustainability, vol. 11(10), 2893, 2019.

5. Vaida, Calin; Birlescu, Iosif; Pisla, Adrian; Carbone, Giuseppe; **Plitea, Nicolae**; Ulinici, Ionut; Gherman, Bogdan; Puskas, Ferenc; Tucan, Paul; Pisla, Doina; RAISE-An Innovative Parallel Robotic System for Lower Limb Rehabilitation New Trends in Medical and Service, Robotics, pp 293-302, 2019

National and International research grants (Detailed)

Total: 33

Excerpt (6 representative grants)

1. National Exploratory Research Project financed by the Executive Agency for Higher Education, Research, Development and Innovation Funding (UEFISCDI) no. PCE171/2021, code: PN-III-P4-ID-PCE-2020-0572-PCE-171, *New frontiers in robotic assisted single port surgery: a novel robotic system with dexterous instruments* (CHALLENGE) (2021-2023)

Position: Key member

Budget: 240.000 Eur

1. National Complex Project for Research, Development and Innovation, financed by the Executive Agency for Higher Education, Research, Development and Innovation Funding (UEFISCDI) no. 59/01.03.2018, code: PN-III-P1-1.2-PCCDI2017-0221, *High accuracy innovative approach for the robotic assisted intraoperative treatment of hepatic tumours based on imagistic-molecular diagnosis* (IMPROVE) (2017-2020)

Position: Key member

Budget: 1.600.000 Eur

2. National Research Grant within Competitiveness Operational Programme 2014-2020 - ID P_37_215, No. 20/01.09.2016, *Innovative Approaches Regarding Rehabilitation and Assistive Robotics for Healthy Ageing (AgeWell)* (2016-2020)

Position: Key Member

Budget: 1.685.000 Eur

3. National project PCCA TIP 2, financed by Executive Unit for High Education Financing, Research, Development and Innovations (UEFISCDI) PN-II-PT-PCCA-2013-4-0647, no. 247/2014, *Robotic assisted prostate biopsy, a high accuracy innovative method* (ROBOCORE)

Position: Key Member

Budget: 530.000 Eur

4. International Grant IP Scopes Switzerland-Romania-Serbia: *Creative Alliance in Research and Education focused on Medical and Service Robotics*, IZ74Z0_13736, 2011-2014, (financed by SNF Switzerland) (2011-2014)

Position: Key Member

Budget: 180.000 Eur

5. Robotic assisted brachytherapy, an innovative approach of inoperable cancers. National project PCCA TIP 2, financed by Executive Unit for High Education Financing, Research, Development and Innovations (UEFISCDI) Project code : PN-II-PT-PCCA-2011-3.2-0414, Contract number: 173/2012, Project duration: 2012-2015.

Position: Coordinator

Patents

1. PLITEA, N., HESSELBACH, I., KUSIEK, A., FRINDT, M., *Bewegungsvorrichtung mit Parallelstruktur*. Patentschrift DE197.57.133.C1, Deutsches Patent-und Markenamt, Bundesrepublik Deutschland, Aktenzeichen: 197.57.133.6-33, Anmeldetag: 20.12.97, Offenlegungstag: -, Veröffentlichungstag der Patenterteilung: 29.07.99. *Invenție aplicată și premiată cu Premiul de transfer tehnologic al Camerei de Industrie și Comerț, Braunschweig pe anul 2001 (12 nov.2001) (în Germania 0,5% din invențiile brevetate sunt aplicate)*

2. HESSELBACH, I., PLITEA, N., KERLE, H., THOBEN, R., *Manipulator mit Parallelstruktur*, Patentschrift DE 197.10.171.C2, Deutsches Patent-und Markenamt, Bundesrepublik Deutschland, Aktenzeichen: 197.10.171.2-15, Anmeldetag: 12.03.1997, Offenlegungstag: 17.09.1998, Veröffentlichungstag der Patenterteilung: 7.02.2002.

3. HESSELBACH, J., PLITEA, N., KERLE, H., FRINDT, M., *Patentschrift DE 198.40.886.C2*, Deutsches Patent-und Markenamt, Bundesrepublik Deutschland, Aktenzeichen: 198.40.886.2-12, Anmeldetag: 8.09.1998, Offenlegungstag: 23.03.2000, Veröffentlichungstag der Patenterteilung: 13.03.2003.

4. KERLE, H., KREFFT, M., Hesselbach, J., PLITEA, N., *Vorschubeinrichtung für erkzeugmaschinen*, Deutsches Patentschrift DE 102 30 287 B3/08.01.2004, Anmeldetag: 05.07.2002, Veröffentlichungstag der Patenterteilung: 08.01.2004 (Patent Nr. 102.287.1-14)

5. PLITEA, N., PISLA, D., VAIDA, C., GHERMAN, B., *Robot Chirurgical*, RO126271-A2, Romania (depus în 2009 aprobat în 30.05.2011)

6. Vaida C., Plitea N., Pisla D., Gherman, B., Suci, M.: *Modul de orientare cu structură modulară cu mai multe curburi*, Romania, RO-129923 (2019)

7. Vaida Călin, Plitea Nicolae, Pîslă Doina, Carbone Giuseppe, Gherman Bogdan, Ulinici Ionuț, *Robot sferic pentru recuperarea medicală a zonei proximale la nivelul membrului superior*, A00374/14.06.2017

8. Gherman Bogdan, Pîslă Doina, Plitea Nicolae, Vaida Călin, Carbone Giuseppe, Pîslă Adrian, Bănică Alexandru, *Familie de roboți pentru recuperarea medicală a membrului superior*, A00375/14.16.2017

Patent requests

1. Plitea, N., Pisla, D., Vaida, C., Vidrean, A., Glogoveanu, M. Lese, D., *Parallel Robot family with four degrees of freedom*, Patent pending no. A10022/30.09.2010, Romania (2010).

2. Plitea N., Pisla D., Vaida C., Gherman B., Szilaghyi A., Galdau B., Cocorean D.: *Parallel robot for brachytherapy with two kinematic guiding chains of the platform (the needle) type 2CRRU and CRU*, Patent pending, A/10004/2013

3. Plitea N., Pisla D., Vaida C., Gherman B., Szilaghyi A., Galdau B., Cocorean D.: *Parallel robot for brachytherapy with two kinematic guiding chains of the platform (the needle) type 2CRRU and CYL-U*, Patent pending, A/10005/2013

4. Plitea N., Pisla D., Vaida C., Gherman B., Szilaghyi A., Galdau B., Cocorean D.: *Parallel robot for brachytherapy with two kinematic guiding chains of the platform (the needle) type CYL-U*, Patent pending, A/10006/2013

5. Plitea N., Pisla D., Vaida C., Gherman B., Szilaghyi A., Galdau B., Cocorean D.: *Parallel robot for brachytherapy with two parallel modules, one for positioning and one for orientation*, Patent pending, A/10007/2013

6. N. Plitea, D. Pisla, C. Vaida, B. Gherman, P. Tucan, C. Govor, F. Covaciu: *Familie de roboti paraleli pentru biopsia transperineala a prostatei*, In curs de brevetare: A/00191/13.03.2015;

7. C. Vaida, D. Pislă, P. Tucan, N. Plitea, B. Gherman: Robot paralel pentru biopsia transperineală a prostatei. In curs de brevetare: 00761/26.10.2015

8. Birlescu, I., Vaida, C., Gherman, B., Burz, A., Tucan, P., Plitea, N., Pislă, D.: Instrument medical automatizat pentru manipularea unei sonde de ultrasonografie laparoscopice, cerere de brevet nr. A00752/15.11.2019

9. Pislă, D., Birlescu, I., Vaida, C., Gherman, B., Tucan, P., Carbone, G., Plitea, N.: Robot paralel pentru recuperarea membrului inferior, A00334/04.06.2019

Cluj- Napoca, 9/12/2022

Prof. dr. eng. Nicolae Plitea