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**LISTA LUCRĂRILOR ȘTIINȚIFICE PUBLICATE,  
CONTRACTE DE CERCETARE  
ȘI BREVETE**

## Teza de doctorat

**Contribuții la realizarea și modelarea cinematico-dinamică a roboților paraleli pentru chirurgia minim invazivă** – Coordonator științific: Prof. dr.-ing. Nicolae PLITEA

## Teza de abilitare

**Medical robotic systems with application in surgery, oncology and rehabilitation** – Cluj-Napoca, 2019

## A. Cărți

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157. **Vaida, C.,** *Measurement of the electrical conductivity of granular materials*, during the student scientific workshop Electrostatica 2000, awarded with the Electrotehnologii 2000 prize
158. **Vaida, C.,** *Research and development of tribo-electrical devices*, Cercetarea – dezvoltarea unor dispozitive de triboelectrizare, during the student scientific workshop Electrotehnologii 1999, paper awarded with the First Prize and the Angouleme Cup

## **B2. Brevete Naționale**

1. Plitea, N., Pislă, D., **Vaida, C.,** Gherman, B.: *Surgical Robot*. RO-126271, Romania (2012).
2. **Vaida, C.,** Plitea, N., Pislă, D., Gherman, B., Suciuc, 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. : *Robot Sferic pentru Recuperarea Medicală a Zonei Proximale la Nivelul Membrului superior*, 13233/30.03.2020.
4. Gherman, B., Pislă, D., Plitea, N., **Vaida, C.,** Pislă, A., Banica, A., Carbone, G.: *Sistem Robotic Paralel pentru recuperarea medicală a membrului superior*, 132234/30.03.2020.



### B3. Brevete Internaționale

1. Plitea, N., Pisla, 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

### C. Comunicări orale ca și lector invitat în cadrul unor manifestări internaționale

1. *Innovative Approaches in Medical Robotics*, 4th International conference **Innovative Ideas in Science** Baia Mare, Romania, 2018  
*Development of New Parallel Robot for Minimally Invasive Surgery*, **INTERNATIONAL WORKSHOP in the Frame of Alexander von Humboldt Foundation** Project Fokoop -- DEU/1010959, Cluj-Napoca, Septembrie, 2010
2. *Development of new parallel robots for minimally invasive surgery* - during the international workshop **Laparoscopic Liver Surgery** 27–29 march 2008 organized by the University of Medicine and Pharmacy, Cluj-Napoca
3. *Development of new parallel robots for minimally invasive surgery* – during the **International Workshop of European Solutions in the Modeling and Simulation of Parallel Robots Applications** 22.05.2008 – Cluj-Napoca, Romania

### D. Proiecte de Cercetare

#### D1. Coordonator

1. **High accuracy innovative approach for the robotic assisted intraoperative treatment of hepatic tumors based on imagistic-molecular diagnosis – IMPROVE**
  - Programme: Complex research project in consortia, cod PN-III-P1-1.2-PCCDI-2017 project code: PCCDI59
  - Financing Institution: Romanian Executive Agency for Higher Education, Research, Development and Innovation Funding
  - Duration 2018-2020
  - Position: Scientific coordinator project 1
2. **Manipulation Systems for Sample Handling in a Sample Receiving Facility”**
  - Programme: ESA research programme, project code: TASUK /16/11305/NBO/1424
  - Financing Institution: ESA-European Space Agency
  - Duration: 2018-2020
3. **A multi-purpose needle insertion device for the diagnosis and treatment of cancer – ACCURATE**
  - Programme: Complex research project in consortia, Code: PN-II-PT-PCCA-2013-4-1596
  - Financing Institution: Romanian Executive Agency for Higher Education, Research, Development and Innovation Funding
  - Duration: 2015-2017
4. **Diagnosis and therapy system for spine related diseases (SPINE)**
  - Programme: Young research teams, code: PN-II-RU-TE-2014-4-0992

- Financing Institution: Romanian Executive Agency for Higher Education, Research, Development and Innovation Funding
- Duration: 2014-2016
- 5. **New Trends in Medical and Service Robots**
  - Programme: Exploratory workshop, code: PN-II-ID-WE-2012-4-018
  - Financing Institution: Romanian Executive Agency for Higher Education, Research, Development and Innovation Funding
  - Duration: 1 month (2012)
- 6. **Simulation and control techniques for robots used in minimally invasive surgery - SIMCOSURG**
  - Programme: Bilateral Cooperation (Slovenia - Romania)
  - Financing Institution: Romanian Executive Agency for Higher Education, Research, Development and Innovation Funding
  - Duration: 18 months
- 7. **Contributions to the kinematics and dynamics of parallel robots for surgery**
  - Programme: *CNCSIS type BD – Excellence scholarship*
  - Financing Institution: National Council of Scientific Research in Higher Education
  - Duration: 3 years (2006-2008)
- 8. **Contributions to the kinematics and dynamics of parallel robots for surgery**
  - Programme: Young PhD students competition TD (TD-437)
  - Financing Institution: National Council of Scientific Research in Higher Education
  - Duration: 12 months (2008)

## D2. Membru în proiecte internaționale

1. **Creative Alliance in Research and Education focused on Medical and Service Robotics**
  - Programme: Scopes International IP Grant - IZ74Z0\_13736
  - Financing Institution: SNF, Switzerland
  - Duration: 3 years (2011-2013)
  - Coordinator (Prof. D. Pisla – TU-CN, Romania, Prof. A. Rodic – IMP Belgrade, Serbia, Prof. H. Bleuler – EPFL Switzerland)
2. **Development of kinematic and dynamic models for parallel robots with applications in surgery - PROINS**
  - Programme: Bilateral Cooperation (Austria - Romania)
  - Financing Institution: Romanian Executive Agency for Higher Education, Research, Development and Innovation Funding
  - Duration: 18 months
  - Coordinator (Prof. D. Pisla , Romania, Prof. M. Husty, Austria)
3. **Mathematische Modellierung und Experimentelle Untersuchung eines modular aufgebauten Parallelroboters in der minimal invasiven Chirurgie – Mathematical Modelling and Experimental Researches on a parallel modular robot for minimally invasive surgery**
  - Programme: Bilateral Cooperation Germany - Romania
  - Financing Institution: Humboldt foundation, Germany

- Duration: 4 years (2007 - 2011)
- Coordinator (Prof. N. Plitea - Romania)

### D3. Membru în proiecte de cercetare

- 1. Innovative Approaches Regarding Rehabilitation and Assistive Robotics for Healthy Ageing – AgeWell**
  - Programme: POC, 20/01.09.2016
  - Financing Institution: Co-financed through the European Fund for Regional Development
  - Duration 4 years (2016 - 2020)
  - Coordinator Prof. D. Pisla, Technical Univ. of Cluj-Napoca
- 2. Robotic assisted prostate biopsy, a high accuracy innovative method**
  - Programme: PN-II-PT-PCCA-2013-4-0647
  - Financing Institution: Romanian Executive Agency for Higher Education, Research, Development and Innovation Funding
  - Duration 3 years (2014 - 2016)
  - Coordinator Prof. D. Pisla, Technical Univ. of Cluj-Napoca
- 3. Robotic assisted brachytherapy, an innovative approach of inoperable cancers – CHANCE**
  - Programme: PN-II-PT-PCCA-2011-3.2-0414
  - Financing Institution: Romanian Executive Agency for Higher Education, Research, Development and Innovation Funding
  - Duration 3 years (2012 - 2015)
  - Coordinator Prof. N. Plitea, Technical Univ. of Cluj-Napoca
- 4. Innovative development of a virtual system for e-learning in hepatic endoscopic surgery – HEPSIM**
  - Programme: PNCD II P4 92080/2008
  - Financing Institution: Romanian Executive Agency for Higher Education, Research, Development and Innovation Funding
  - Duration 3 years (2008 - 2011)
  - Coordinator: Dr. Florin Graur, University of Medicine and Pharmacy Cluj-Napoca
- 5. Multidisciplinary development of surgical robots based on innovative parallel structures**
  - Programme: PNCD II Nr. 1687, Tip P-4 2007 - 2010
  - Financing Institution: Romanian Executive Agency for Higher Education, Research, Development and Innovation Funding
  - Duration 3 years (2007 - 2010)
  - Coordinator Prof. D. Pisla, Technical Univ. of Cluj-Napoca
- 6. Advanced Structural Kinematical and Dynamical Research For Open Flying Simulation System - ASKOT**
  - Programme: CNCSIS No. 120/2006
  - Financing Institution: National Council of Scientific Research in Higher Education
  - Duration 3 years (2006 - 2009)
  - Coordinator Prof. A. Pisla, Technical Univ. of Cluj-Napoca

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7. **Analysis and development of robotic structures with parallel kinematics and the implementation of testing algorithms for their performance evaluation**
  - Programme: CNCSIS No. 27702/2005
  - Financing Institution: National Council of Scientific Research in Higher Education
  - Duration 3 years (2005 - 2008)
  - Coordinator: prof. Doina Pislă, Technical Univ. of Cluj-Napoca
8. **Structural, geometric, kinematic and dynamic research for new structures of parallel micro-robots with elastic hinges**
  - Programme: CNCSIS No. 23778 /2006
  - Financing Institution: National Council of Scientific Research in Higher Education
  - Duration 3 years (2006 - 2009)
  - Coordinator: prof. Nicolae Plitea, Technical Univ. of Cluj-Napoca
9. **Promoting research and participation in European programmes in the field of parallel robots with applications in surgery – PARASURG**
  - Programme: CEEEX – Module III 12371 – 2006 (support project)
  - Financing Institution: National Council of Scientific Research in Higher Education
  - Duration 2 years (2006-2008)
  - Coordinator: prof. Doina Pislă, Technical Univ. of Cluj-Napoca

#### **E. Proiecte de cercetare și dezvoltare industrială**

##### **Coordonator tehnic**

1. **Design and development of the hydraulic control system for the Beker press line**  
Contract 91M/ 2005                      Beneficiary S.C. SORTILEMN S.A. Gherla
2. **Design and development of an electro-hydraulic transfer system for large construction**  
Contract 97M/ 2006                      Beneficiary S.C. ELAN HOUSE S.R.L. Cluj-Napoca
3. **Metal waste hydraulic press**  
Contract 101M/ 2013                      Beneficiary S.C. AROSA S.A. Cluj-Napoca

Cluj-Napoca  
16-07-2020

Dr.-Ing. Calin VAIDA

