# INTELLIGENT RECONFIGURABLE SYSTEMS LABORATORY

## Contact details

<table>
<thead>
<tr>
<th>Name</th>
<th>Intelligent Reconfigurable Systems Research Laboratory</th>
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<tr>
<td>Acronym</td>
<td>SIR</td>
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<td>Logo</td>
<td><img src="image" alt="SIR Logo" /></td>
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<tr>
<td>Site</td>
<td><a href="http://mdm.utcluj.ro/Cercetare/Lab_SIR/index.html">http://mdm.utcluj.ro/Cercetare/Lab_SIR/index.html</a></td>
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<td>Address</td>
<td>103-105, Muncii Blvd., 400641, Cluj-Napoca, Romania</td>
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<tr>
<td>Faculty/Department</td>
<td>Faculty of Automotive, Mechatronics and Mechanical Engineering - Technical University of Cluj-Napoca Department of Mechatronics and Machine Dynamics</td>
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## Areas of expertise

- Advanced Technologies for Industrial Process Control
- Identifying and modeling highly complex processes
- New paradigms of manufacturing systems
- Technologies and High Precision Mechanical Products and Mechatronic Systems
- Applied mechatronics; Intelligent mechatronic products and systems
- Techniques, metrologies and precise and highly precise measuring instruments
- Conventional and unconventional automatic drive systems and equipment, with accurate and highly accurate linear or angular positioning
- Robotics and high precision microrobotics with or without autonomous motions
- High accuracy conventional and unconventional production techniques
- Assembly technologies, microassembly, rapid assembly and high accuracy automatic disassembly
- Innovative Products and Technologies for Transport and Automotive Industry
- Products and technologies for automotive industry
- Development of New Types of Mechanical Transmissions
- Cylindrical and frontal ball transmissions
- Processional variable speed
- Diagnosis and maintenance of Industrial Equipment
- Technologies for vibration reduction in dynamic systems
- Predictive maintenance systems

## Team

- **Prof. Dr.-Ing. Cornel Brisan**, Prof. Dr. Eng. Mircea Bara, Prof. Dr. Eng. Mihai Olimpiu, Assist. Prof. Dr. Eng. Calin Rusu, Conf.dr.ing. Olimpiu Hancu, Sl.dr.ing. Lupusan Ciprian, Asist.dr.ing. Rad Ciprian, Ddr. Trif Mihaela

## Representative projects

- **Reconfigurable haptic interfaces used in dynamic contact reproduction - Theory Developmentsethical and**
significant results

The most representative publications of the past 5 years:

6. Tătar, M.O., Barbu, P., - Studies regarding mobile robots that are adaptable to rough terrain, Revista Robotica & Management, ISSN 1453-2069, Vol. 24, nr. 1, 2019, pp. 24-29.
7. Chiroiu, Veturia; Brisan, Cornel; Dumitriu, Dan; et al., A sonification algorithm for developing the off-roads models for driving simulators MECHANICAL SYSTEMS AND SIGNAL PROCESSING Volume: 98 Pages: 310-323 Published: JAN 1 2018
8. Munteanu, Ligia; Brisan, Cornel; Chiroiu, Veturia; et al., STRAIN AMPLITUDE DEPENDENT INTERNAL FRICTION AND THE YOUNG’S MODULUS DEFECT IN DAMAGED SOLIDS ACTA TECHNICA NAPOCENSI SERIES-APPLIED MATHEMATICS MECHANICS AND ENGINEERING Volume: 60 Issue: 4 Pages: 485-490 Published: NOV 2017
9. Chiroiu, Veturia; Munteanu, Ligia; Dumitriu, Dan; et al., ON THE SONIC FILMS WITH DEFECTS PROCEEDINGS OF THE ROMANIAN ACADEMY SERIES A-MATHEMATICS PHYSICS TECHNOLOGICAL SCIENCES INFORMATION SCIENCE Volume: 18 Issue: 4 Pages: 378-385 Published: OCT-DEC 2017

The offer addressed to the economic environment

<table>
<thead>
<tr>
<th>Research &amp; development</th>
<th>Modeling complex intelligent systems.</th>
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<tr>
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<td>Developing robotic systems for manufacturing</td>
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<td>Development robotic inspection systems</td>
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<td>Development omnidirectional mobile robots</td>
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<td>Developing virtual models</td>
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<td>Consulting</td>
<td>For automated manufacturing systems</td>
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<td>For precision mechanical systems</td>
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<td>Pipe inspection</td>
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<td>Training</td>
<td>Computer aided design and development of mechatronic systems</td>
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<td>Development of manufacturing technologies</td>
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<td>Control algorithms for robots</td>
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