



Emilia Brad

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Nationality: Romanian

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europass

WORK EXPERIENCE

01/10/2022 – CURRENT Cluj-Napoca, Romania

Professor [Department of Design Engineering and Robotics]
Technical University of Cluj Napoca

Teaching activities: Flexible manufacturing systems; Oriented design of manufacturing systems; Eco / Ergo-Design; Machinery, manufacturing equipment and industrial logistics;

Scientific research: Reconfigurable manufacturing systems and equipment; Manufacturing robotics; Product design engineering; Innovation management;

Licensing project management: Flexible manufacturing systems; Manufacturing robotics; Service robots

Dissertation project management: Robotics

Address Memorandumului 28, 400114, Cluj-Napoca, Romania

07/07/2019 – CURRENT Cluj Napoca, Romania

Project manager - Bisnet Transylvania - Enterprise Europe Network
Technical University of Cluj Napoca

- Promoting the Enterprise Europe Network;
- Organizing local and regional events: seminars / workshops on European topics, internationalization and innovation;
- Developing the relationship with companies, local organizations and partners in the Enterprise Europe Network;
- Organizing and conducting meetings with clients;
- Providing internationalization and innovation support to companies and organizations in the region;
- Regular information to customers on opportunities within the Enterprise Europe Network;
- Generating collaboration proposals and collaboration partnerships;
- Involvement and participation in events organized within the Enterprise Europe Network;
- Distributes permanent or occasional tasks within the project;

30/09/2013 – 30/09/2022 Cluj Napoca, Romania

Associate Professor [Department of Design Engineering and Robotics]
Technical University of Cluj Napoca,
Memorandumului 28, 400114

Teaching activities: Flexible manufacturing systems; Oriented design of manufacturing systems; Eco / Ergo-Design; Machinery, manufacturing equipment and industrial logistics;

Scientific research: Reconfigurable manufacturing systems and equipment; Manufacturing robotics; Product design engineering; Innovation management;

Licensing project management: Flexible manufacturing systems; Manufacturing robotics; Service robots

Dissertation project management: Robotics

30/09/2005 – 29/09/2013 Cluj Napoca, Romania

Lecturer [Department of Engineering Design and Robotics]
Technical University of Cluj Napoca, Memorandumului 28,
400114

Teaching activities: Flexible manufacturing systems; Technical creativity;

Scientific research: Flexible manufacturing systems; Reconfigurable manufacturing systems and equipment; Manufacturing robotics;

Licensing project management: Flexible manufacturing systems; Manufacturing robotics;

30/09/2000 – 29/09/2005 Cluj-Napoca , Romania

● **Assistant Professor [Department of Design Engineering and Robotics]** Technical University of Cluj Napoca, Memorandumului 28, 400114

Teaching activities: Flexible manufacturing systems

Scientific research: Flexible manufacturing systems; Reconfigurable manufacturing systems and equipment

31/05/1997 – 29/09/2000 Cluj-Napoca , Romania

● **Research Engineer [Center for Scientific Research, Technology Transfer and Innovation]** Technical University of Cluj Napoca, Memorandumului 28, 400114

Research management

EDUCATION AND TRAINING

30/09/2001 – 29/09/2010 Cluj-Napoca , Romania

● **PhD Graduate - engineering** Technical University of Cluj Napoca

Address Memorandumului 28 , 400114, Cluj-Napoca , Romania | **Website** www.utcluj.ro

30/09/1998 – 29/09/1999 Cluj-Napoca , Romania

● **Postgraduate** Technical University of Cluj Napoca

Address Memorandumului 28, 400114 , Cluj-Napoca , Romania | **Website** www.utcluj.ro

30/09/1992 – 29/09/1996 Cluj-Napoca, Romania

● **Engineer (Machinery and production equipment)** Technical University of Cluj Napoca

Address Memorandumului 28, 400114, Cluj-Napoca, Romania | **Website** www.utcluj.ro

FORMATION

30/06/2018 – 29/07/2018

● **Certificate - Advanced course**

Robotic Simulation in Siemens Process Simulate
ADA PLM / Siemens

30/04/2012 – 29/05/2012

● **Certificate of participation - Training course**

Robot programming and operation Fanuc
Fanuc Robotics Europe

31/03/2012 – 29/04/2012

● **Graduation certificate - Advanced course**

Design of Human Machine Interface (HMI) with WinCC flexible
Siemens Romania

29/02/2012 – 30/03/2012

● **Graduation certificate - Advanced course**

STL PLC programming and industrial automation
Siemens Romania

31/01/2012 – 28/02/2012

● **Graduation certificate - Advanced course**

LAD / FBD PLC programming and industrial automation

Siemens Romania

30/09/1996 – 30/12/1996

Graduation certificate - Advanced course

Pedagogical training

Technical University of Cluj Napoca

LANGUAGE SKILLS

MOTHER TONGUE(S): Romanian

Other language(s):

English

Listening B2

Spoken production B2

Reading B2

Spoken interaction B2

Writing B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DIGITAL SKILLS

Microsoft Office | Zoom | Social Media | Skype | Android | Google Drive | Internet Explorer Edge Mozilla Google Chrome

TEACHING ACTIVITY

30/09/2000 – CURRENT

Laboratory and project works

Flexible Manufacturing Systems (BSc)

Eco-ergo design (MSc)

Oriented design of manufacturing systems (MSc)

Machinery, manufacturing equipment and industrial logistics (BSc)

30/09/2000 – CURRENT

Course

Flexible Manufacturing Systems (BSc)

Eco-ergo design (MSc)

Oriented design of manufacturing systems (MSc)

Machinery, manufacturing equipment and industrial logistics (BSc)

EXPERTISE

31/05/1997 – CURRENT

RESEARCH TOPICS

Innovation engineering and management, flexible manufacturing systems, reconfigurable manufacturing systems

- 3 unique author books

- 1 first author book

- 4 co-author books

- 63 scientific papers (34 journals; 29 international conferences)

- 12 research grants in national competition as a member

- 5 international research projects as a member

- 2 FP7 research grants as module manager
- 10 research projects (national) as a member
- 2 research projects (national) as project director
- 1 COSME (international) innovation project as a member
- 1 COSME innovation project (international) as UTCN project director
- 5 institutional development projects as a member

Journals in which I have published:

International Journal of Production Research, International Journal of Environmental Technology and Management, Environmental Engineering and Management Journal, Journal of Applied Mechanics and Materials, Procedia-CIRP, International Journal of Sustainable Economy, Economy Informatics, International Journal of Transition and Innovation Systems, Amphitheater Economic, International Journal of Management Knowledge and Learning, Applied Sciences, Sustainability

31/05/1997 – CURRENT

EXPERTISE IN INNOVATION

In innovation, my focus is on business model innovation, innovation management systems, innovation audits, structured innovation in product design. In this respect I published papers in international journals and conferences and I was involved in several projects in this area. Some representative examples are:

Quantifying the Market Potential of an Innovative Product Idea, Acta Technica Napocensis (B), Series: Applied Mathematics and Mechanics, ISSN 1221-5872, 51 (1): 7-12, 2008;

Software Platform for Supporting Open Innovation, 2008 IEEE-TTTC International Conference AQTR, ISBN 1-4244-0361-8, Indexed ISI WoK, SCOPUS and IEEE Xplore, 224-229, 2008;

Systematic Innovation for Improving Competitiveness of a Master Study Program, International Conference on Engineering & Business Education, Innovation and Entrepreneurship, Sibiu, Oct. 18-21, ISI WoK, ISBN 978-606-12-0369-7 / ISSN 1843-6730, pp. 365-368, 2012;

Enhancing SWOT Analysis with TRIZ-based Tools to Integrate Systematic Innovation in Early Task Design, Elsevier, TRIZ Future Conference, Paris, 2013;

An Innovative Approach on Prioritizing Internal Improvement Projects within SMEs, 3rd Int. Conf. On Quality and Innovation in Engineering and Management, 978-973-662-978-5, Cluj-Napoca, 209-214, ISI WoK, 2014.;

Systematic Integration of Innovation in Process Improvement Projects Using the Enhanced Sigma-TRIZ Algorithm and Its Effective Use by Means of a Knowledge Management Software Platform, Economic Informatics (B+), ISSN 1453-1305, 13 (4): 75-89, 2009;

Economic Development of Peripheral / Lagging Zones through Smart Innovation, International Journal of Transitions and Innovation Systems, 4 (3/4), 201-220, 2015;

Framework for Planning Polycentric Innovation in High-tech Dynamic Industries, the 23rd International Conference on Production Research (ICPR23), Manila, 2-6 August, 2015;

Designing the Usability of an Innovation Management Assessment Software Platform, 2016 International Conference on Production Research - Regional Conference Africa, Europe and the Middle East (ICPR-AEM 2016) and 4th International Conference on Quality and Innovation in Engineering and Management (QIEM 2016);

Lean Innovation of Course Unit Content, 3rd International Engineering and Technology Education Conference & 7th Balkan Region Conference on Engineering and Business Education, Sibiu, DOI 10.1515 / cplbu-2015-0020, 2015;

Leading Innovation to Improve Complex Process Performances by Systematic Problem Analysis with TRIZ, Procedia Engineering, 131 (2015), 1121-1129, Elsevier, 2015;

Enhancing SWOT Analysis with TRIZ-based Tools to Integrate Systematic Innovation in Early Task Design, Procedia Engineering, 131 (2015), 616-625, Elsevier, 2015;

Directed Innovation of Business Models, International Journal of Management, Knowledge and Learning, 5 (1), 97-119, 2016;

Methodology for Lean Design of Disruptive Innovations, Procedia CIRP, Elsevier, 50 (2016), 153-159, 2016;

31/05/1997 – CURRENT

EXPERTISE IN INNOVATION - continued

Smart Deployment of Demonstrators into Commercial Successful Solutions, Procedia CIRP, Elsevier, DOI: 10.1016 / j.procir.2014.03.137, vol 21, 503-508, 2014;

Value Chain Planning in Cross-Industry Meta-Cluster Initiatives, Balkan Region Conference on Engineering and Business Education, Sciendo, vol 1 (1), DOI: 10.2478 / cplbu-2020-0030, pages 256-264, ISSN 2391-8160, 2019;

Quantifying and Leading Innovation with TRIZ within Competitiveness Strategies, in: Advances and Impacts of the Theory of Inventive Problem Solving (ed. S. Koziółek, L. Chechurin, M. Collan), 65-74, Springer, ISBN 978-3-319-96531-4, ISBN 978-3-319-96532-1 (eBook), <https://doi.org/10.1007/978-3-319-96532-1>, 2018.

I have also been involved in several projects on innovation. Representative examples are:

Advanced tools for managing the complexity of the process of design / synthesis of radically innovative products, Code 1285, National grant CNC SIS, 2006-2007;

Increasing Quality Performance in Cooperative Processes in SMEs through Expert Systems in Engineering and Innovation Management, National grant CEEX II no. 140 / 02.10.2006, ANCS, Cod. 628, 2006-2008;

IT Tool to Support SMEs in Systematic Innovation, Based on Consolidated Methodology and Innovation Knowledge Domain Structured through Specific Ontologies, TECH-IT-EASY, FP7, Call SME-2008-1, Cod: 232410, 2009-2011 .;

Demonstrating the Industrial Validity and Market Feasibility of IT Tool to Support SMEs in Systematic Innovation Processes, MARKET-IT, FP7, Call SME-2011, Code: 311517, 12012-2014;

Integrated Innovation Management Systems for SMEs, InnDrive, ANCS, Cod: PNIPTPCA201341319, - innDrive, PCCA / 341/2014), 2014-2017;

Mainstream Technology Commercialization in Romania (MacRO), JAR2020_002 / 03.02.2020, 02.03.2020-30.09.2020,

Innovation Management System based on SR CEN TS 16555, no. 72 / 28.12.2018, Beneficiary: PRODIMA, 2018-2019; as well as BISNet Transylvania (COSME -EEN), 2018-2021.

31/05/1997 – CURRENT

EXPERTISE IN SUSTAINABILITY

On sustainability my focus is on eco design of products, eco-manufacturing systems, and eco-buildings, but also on sustainable economic development. In this area I have published papers and I run various projects. Some representative examples of publications are:

Eco Ergo Design, UT Press Publishing House, ISBN978-606-737-425-4, Cluj-Napoca, 225 pg., 2020;

Framework for Eco-Innovative Design with Application in Low Voltage Electric Appliance Industry, International Journal of Environmental Technology and Management, Inderscience Enterprises (SCOPUS), vol 14, no. 5/6, pp. 379-396, ISSN 1466-2132, 2011;

Method for Competitive Environmental Planning, Environmental Engineering and Management Journal, FI 1.004, ISI WoS, ISSN 1582-9596, vol 11, issue 4, pp. 823-828, 2012;

Economic Development of Peripheral / Lagging Zones through Smart Innovation, International Journal of Transitions and Innovation Systems, 4 (3/4), 201-220, 2015;

Environmentally Sustainable Economic Growth, Economic Amphitheater, 18 (42), 446-460, 2016;

Techniques for Ensuring Cost Savings and Environment Protection in Buildings, Acta Technica Napocensis - Series: Applied Mathematics, Mechanics, And Engineering, Vol 61, No 4, 2018, pp. 647-656, WOS: 000453442200017, ISSN: 1221-5872;

Safety Management within a Robotic Manufacturing Systems through Layout Design, Acta Technica Napocensis - Series: Applied Mathematics, Mechanics, And Engineering, Vol 61, No 3, 2018, pp. 137-146, WOS: 000451702200018, ISSN: 1221-5872;

Concurrent Approach for Multiple Eco-function Design, 17th CIRP International Conference on Life Cycle Engineering, Hefei, China, ISBN 978-7-5650-0186-4, 236-241, 2010;

Managing Emotional Aspects of PSS Functionalities for Sustainability, 5th CIRP Int. Conf. On Industrial Product Service Systems, Bochum, Germany, March 14-15: Product-Service Integration for Sustainable Solutions, Lecture Notes in Production Engineering (ed. Horst Meier), Ed. Springer, Springer Link, ISBN 978-3-642 -30819-2, pp. 165-175, 2013;

State-of-the-Art and Proposals on Reducing Energy Consumption in the Case of Industrial Robotic Systems, 3rd Int. Conf. On Quality and Innovation in Engineering and Management, 978-973-662-978-5, Cluj-Napoca, 337-341, ISI WoK, 2014;

Vectors of Innovation for Balancing Economic Growth and Sustainable Development, Proceedings, BASIQ Int. Conference, ISSN 2457-483X, Bucharest, 457-464., 2015;

TRIZ to Solve Challenges for Designing Sustainable, Intelligent and Inclusive Buildings. In: Cavallucci D., Brad S., Livotov P. (eds) Systematic Complex Problem Solving in the Age of Digitalization and Open Innovation. TFC 2020. IFIP Advances in Information and Communication Technology, vol 597, pp. 196-206, ISBN 978-3-030-61294-8, Springer, Cham. https://doi.org/10.1007/978-3-030-61295-5_16, 2020;

31/05/1997 – CURRENT

EXPERTISE IN SUSTAINABILITY - continued

Cost Optimization for Designing Sustainable, Intelligent and Inclusive Buildings Using TRIZ, Proceedings of the 7th Review of Management and Economic Engineering International Management Conference, "Management Challenges Within Globalization", pp. 14-22, ISSN 2247 - 8639, Toderescu Publishing House, 2020 ;

Algorithm for Designing Reconfigurable Equipment to Enable Industry 4.0 and Circular Economy-Driven Manufacturing Systems. Appl. Sci. 2021, 11, 4446. <https://doi.org/10.3390/app11104446>;

Lifecycle Design of Disruptive SCADA Systems for Waste-Water Treatment Installations. Sustainability, 2021, 13, 4950. <https://doi.org/10.3390/su13094950>. A recent project in this area is Design and optimization of the underground waste collection platform, nr. 6135 / 08.03.2019, Sky Park Systems SRL, Cluj-Napoca, 2019.

31/05/1997 – CURRENT

DIGITALIZATION EXPERTISE

Flexible Manufacturing Systems, Cluj-Napoca, Ed. UT PRES, ISBN 973-662-162-6, 90 pg., 2005;

Basics of Lean Manufacturing, Ed. U.T. Press, ISBN 978-973-662-875-7, 541 pg., 2013;

Reconfigurable Manufacturing, Ed. U.T. Press, ISBN 978-973-662-876-4, 526 pg., 2013;

Swarm Intelligence-Based Evolutionary Algorithm for Conceptual Design of Reconfigurable Manufacturing Equipments, Acta Technica Napocensis (B +), Series: Applied Mathematics and Mechanics, ISSN 1221-5872, 53 (3): 393-398, 2010;

Reconfigurability Function Deployment in Software Development, Economic Informatics, 15 (2): 130-141, 2011;

Knowledge Modeling of e-Maintenance in Industrial Robotics, Advanced Engineering Forum, doi: 10.4028 / www.scientific.net / AEF.8-9.603, TransTech, Vol 8-9, pp. 603-610, 2013;

CALDET: A TRIZ-Driven Integrated Software Development Methodology. In: Benmoussa R., De Guio R., Dubois S., Koziółek S. (eds) New Opportunities for Innovation Breakthroughs for Developing Countries and Emerging Economies. TFC 2019. IFIP Advances in Information and Communication Technology, vol 572. Springer, Cham. ISBN 978-3-030-32496-4, pp. 400-416, DOI: 10.1007 / 978-3-030-32497-1_32, ISBN: 978-3-030-32497-1;

Design of Smart Connected Manufacturing Resources to Enable Changeability, Reconfigurability and Total-Cost-of-Ownership Models in the Factory-of-the-Future, International Journal of Production Research, 56 (6), 2018, 2269-2291, DOI: 10.1080 / 00207543.2017.1400705, Print ISSN: 0020-7543 Online ISSN: 1366-588X;

A PSS Approach in Software Development, 2nd CIRP IPS2 Conference 2010 on Product-Service Systems, Linköping, Sweden, ISBN 978-91-7393-381-0, 291-298, 2010.

Representative recent projects in which I was involved are Optimization of an automated manufacturing line for construction materials, 1735 / 22.10.2012, Beneficiary SC Îndemânarea Prodcom Bistrița, 2012-2013;

Conception, design, execution, experimental testing and optimization of intelligent and networked equipment for sublimation of benzoic acid from Styra plant resins, nr. 2366 / 28.01.2020, beneficiary: Plantextrakt, Cluj-Napoca, 2020.