

Stelian Cazan

Mechanical Engineering Researcher | University Lecturer | Gear Contact Mechanics

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Nationality: Romanian

PROFESSIONAL EXPERIENCE

Senior Lecturer (Şef lucrări)

January 2025 – Present | Gheorghe Asachi Technical University of Iaşi, Romania

- Strength of Materials – lectures
- Strength of Materials – laboratory classes
- Strength of Materials – seminars
- Lifting and Conveying Equipment – lectures and design projects

SEP Expert, “First STEM Student in the Family” Project

December 2025 – Present | Gheorghe Asachi Technical University of Iaşi, Romania

Providing personalized educational support to students experiencing difficulties in their academic and professional development.

University Teaching Assistant

October 2022 – January 2025 | Gheorghe Asachi Technical University of Iaşi, Romania

Teaching activities.

- Strength of Materials – laboratory classes
- Strength of Materials – seminars
- Theoretical Mechanics – seminars

Research Assistant

April 2023 – Present | Romanian Academy of Scientists

Research project on advanced technologies for the rehabilitation of historic monuments and churches. Research activities.

Research Assistant

November 2018 – September 2022 | Gheorghe Asachi Technical University of Iaşi, Romania

Industrial robotics research.

- Active participation in laboratory testing of a robotic system’s functionality
- Simulation and programming of an industrial robot for removing parts from electronic components
- Preparation of scientific papers and conference posters

Doctoral Researcher

October 2016 – September 2023 | Faculty of Mechanical Engineering, Gheorghe Asachi Technical University of Iaşi, Romania

Doctoral research topic: concentrated contact analysis of spur and helical cylindrical gears.

- Contact analysis of spur and helical cylindrical gears through the development of a computational program
- Research into development trends in spur and helical cylindrical gears aimed at increasing durability

Mechanical Design Engineer

May 2014 – October 2014 | GL PROJECT SRL, Iași, Romania

Design and research.

- CAD
- Research on bevel and worm gears
- Research on cutting tools
- Programming

Mechanical Design Engineer

May 2013 – October 2013 | GL PROJECT SRL, Iași, Romania

Design and research.

- CAD
- Research on cutting tools
- Programming
- Research on spur and helical cylindrical gears

Mechanical Design Engineer

May 2012 – October 2012 | GL PROJECT SRL, Iași, Romania

Design and research.

- Research on spur and helical cylindrical gears
- Research on cutting tools
- Die design
- Technical translation

Mechanical Design Engineer

June 2011 – October 2011 | GL PROJECT SRL, Iași, Romania

Research and development.

- Research on spur and helical cylindrical gears
- Technical translation
- Research on plastic injection molds
- Programming

EDUCATION AND TRAINING

Master's Degree in Technical Diagnostics and Expert Assessment in Mechanical Engineering

2022–2024 | Faculty of Mechanical Engineering, Gheorghe Asachi Technical University of Iași, Romania

Master's Degree in Advanced Mechatronics

October 2014 – June 2016 | Faculty of Mechanical Engineering, Gheorghe Asachi Technical University of Iași, Romania

- Flexible manufacturing systems, artificial intelligence and machine vision
- Manufacturing of cylindrical and bevel gears
- Gear-cutting machines

Bachelor's Degree in Mechanical Engineering

October 2010 – July 2014 | Faculty of Mechanical Engineering, Gheorghe Asachi Technical University of Iași, Romania

- Theory of Gearing

- Mechanics of Deformable Solids
- Numerical analysis and programming for engineering applications
- Machine tools and cutting tools
- CAD modeling and virtual simulation

C++ Courses

October 2009 – May 2010 | Faculty of Computer Science, Alexandru Ioan Cuza University of Iași, Romania

High School

September 2005 – June 2009 | Garabet Ibrăileanu College, Iași, Romania

- Mathematics and Computer Science specialization; C++ programming

Lower Secondary School

September 2001 – June 2005 | Garabet Ibrăileanu College, Iași, Romania

Primary School

September 1997 – June 2001 | Garabet Ibrăileanu College, Iași, Romania

PERSONAL SKILLS

Native language: Romanian

English — Listening C2; Reading C2; Spoken interaction C2; Spoken production C2; Writing C2

Spanish — Listening B2; Reading B2; Spoken interaction B1; Spoken production A2; Writing A2

Communication Skills

- Good ability to present ideas orally and in writing
- Adaptability and effective communication within a team
- Good debating skills

Organizational and Management Skills

- Good team coordination skills
- Ability to communicate ideas clearly to a working team
- Coherent, algorithmic thinking when presenting ideas to a team or carrying out specific tasks

Digital Skills

- Visual C programming – advanced
- MATLAB – intermediate
- CATIA V5 CAD – intermediate
- RobotStudio 6.08 – intermediate
- Autodesk Inventor – beginner
- Microsoft Word – intermediate
- Microsoft PowerPoint – intermediate
- LabVIEW – beginner
- Cloud-based website platforms (Wix, Weebly, WordPress) – intermediate

Other Skills and Interests

- Mathematics
- Writing
- Acting and modeling
- Interdisciplinary research capabilities
- Music

- Sports
- Website development using cloud platforms

ADDITIONAL INFORMATION

Publications

- Aburlăciței, R.-D.; Cazan, S.; Crețu, S.; Benchea, M. (2026). Study of Roller Profile Impact on Surface Contact Pressure of Tapered Roller Bearings. *Innovations in Mechanical Engineering V*, p. 411.
- Cazan, S.; Crețu, S.; Goanță, V.; Blanari, I.; Andrușcă, L.; Opreșan, M. (2026). Environmental Impact of High-Performance Spur and Helical Gears in Industry. *Environmental Engineering and Management Journal*, 25(2), 265–270.
- Cazan, S.; Crețu, S. (2024). Tooth Contact Analysis of Spur and Helical Gears in Case of Shafts Deflections. *ASME IDETC-CIE 2024*. DOI: 10.1115/DETC2024-145079.
- Blanari, I.; Cazan, S.; Samara, F.; Goanță, V. (2024). Impact of Local Plastic Deformation on Fatigue Life and Strength of 2024-T3 Aluminum Alloy Notched Specimens. *International Journal of Modern Manufacturing Technologies*, 16(2), 97.
- Doroftei, I.; Cazan, S.; Burlacu, A.; Chirița, D. (2023). Perspectives on Originally Designed Eco-Friendly Robotic Cell for PCB Dismantling. In *Proceedings of SYROM 2022 & ROBOTICS 2022, Mechanisms and Machine Science*, 127, 251–260. Springer. DOI: 10.1007/978-3-031-25655-4_26.
- Cazan, S.; Dănilă, C.; Crețu, S. (2023). Tooth Contact Analysis of Helical Gears Using Semi-Analytical Methods in Real Gearing Situations. *Tribology International*, 185, 108482.
- Cazan, S.; Bhaumik, S.; Paleu, V.; Crețu, S. (2023). Developing a Fast-Processing Novel Algorithm for Contact Analysis of Standard Spur Gears. *Symmetry*, 15(2), 554.
- Doroftei, I.; Chirița, D.; Stamate, C.; Cazan, S.; Pascal, C.; Burlacu, A. (2021). Robotic System Design and Development for Automated Dismantling of PCB Waste. *Industrial Robot: The International Journal of Robotics Research and Application*.
- Cazan, S.; Chirița, D.; Stamate, C.; Irimia, D.; Burlacu, A.; Doroftei, I. (2020). Dismantling Strategy for Capacitors Placed on Printed Circuit Boards: Challenges and Preliminary Results. *IOP Conference Series: Materials Science and Engineering*, 997(1), 012071.
- Cazan, S.; Dănilă, C.; Crețu, S. (2020). Tooth Contact Analysis of Spur and Helical Gears with Crowned Profile for Pinion. *IOP Conference Series: Materials Science and Engineering*, 724(1), 012030.
- Cazan, S.; Crețu, S. (2018). Tooth Contact Analysis of Spur and Helical Gears with End Relief Profiles. *IOP Conference Series: Materials Science and Engineering*, 444(2), 022004.
- Crețu, S.; Pop, N. N.; Cazan, S. V. (2018). Considerations Regarding the Pressures Distribution on Leads of Spur Gears. *IOP Conference Series: Materials Science and Engineering*, 444(2), 022022.
- Crețu, S.; Pop, N.; Cazan, S. (2017). Tooth Contact Analysis of Spur Gears. Part 1 – SAM Analysis of Standard Gears. *MATEC Web of Conferences*, 112, 07015.
- Cazan, S.; Pleșu, G. (2016). A Mathematical Approach Regarding a Better Geometry of the Root Fillet of Symmetric and Asymmetric Gears with the Main Scope of Increasing the Fatigue Strength of Gear Teeth and Avoiding the Occurrence of Cracks. *IOP Conference Series: Materials Science and Engineering*, 145(4), 042035.
- Pleșu, G.; Cazan, S. (2016). On the Optimization of the Asymmetric Spur Gears Fillet Geometry Using Bézier Curves. *IOP Conference Series: Materials Science and Engineering*, 145(2), 022013.
- Pleșu, G.; Cazan, S. (2014). Contribution on the Optimization of the Spur Gears Design Process Using Software Application. *Applied Mechanics and Materials*, 658, 117–122.
- About Semi-Analytical Approaches of Stress State Developed in the Material of Machine Parts Subjected to Concentrated Contact Loading. [Bibliographic details to be verified; retained from original CV.]

Editorial and Peer-Review Activities

- Reviewer for Asian Research Journal of Mathematics

- Reviewer for Tribology International
- Reviewer for Mechanism and Machine Theory

Conferences

- 6th International Conference on Advanced Concepts in Mechanical Engineering (ACME 2014), 12–13 June 2014, Iași, Romania.
- ModTech 2016 International Conference, Iași, Romania.
- 21st IManEE 2017 International Conference – Innovative Manufacturing Engineering & Energy, 25–26 May 2017, Iași, Romania.
- 8th International Conference on Advanced Concepts in Mechanical Engineering (ACME 2018), 7–8 June 2018, Iași, Romania.
- Leading International Conference on Tribology, 19–21 September 2019, Cluj-Napoca, Romania.
- 9th International Conference on Advanced Concepts in Mechanical Engineering (ACME 2020), 4–5 June 2020, Iași, Romania (online).
- International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, Washington, DC, August 2024.

Seminars and Courses

- Business Development Seminar, organized by AOA Iași, August 2012.
- C++ Programming Module Courses, Iași (AOA Iași), October 2010 – February 2011.
- Optional course in Innovative Entrepreneurship Development, Faculty of Mechanical Engineering, Iași.
- Modeling and Acting Courses, November 2011 – March 2012.
- Entrepreneurial Skills Development Courses, IDEO Business Support and Development Center, Iași (organized by DAL Consulting Iași), May – June 2015.
- Social Economy Expert Courses, organized by iCresc EUZONE and Neamț County Council, August 2020.
- Raiffeisen StartUp Studio by Factory Courses (Design Thinking), May – June 2021.

Distinctions and Awards

- Environmental Awareness Certificate, Corona Foundation Iași, “Green and Clean” Caravan, June 2007.
- Digital Skills Certificate, July 2009.
- Social Economy Manager Diploma, August 2020.
- Social Economy Entrepreneur Diploma, August 2020.
- Enterprise Design Thinking Practitioner Badge, IBM, May 2021.
- National Award for Entrepreneurial Education, 2007.
- Various awards and distinctions for extracurricular activities during school years.

Professional Memberships

- American Society of Mechanical Engineers (ASME), since 2024.
- Romanian Association for the Theory of Mechanisms and Machines, since 2017.
- Romanian Tribology Association, since 2018.