



RAFAEL RUBEN BOROS

PhD in informatics

Electrical engineer (MSc)

Nuclear Power Plant Operations Professional engineer



MTMT ID: 10067321 (Publications)
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LANGUAGES

- English: upper-intermediate to advanced (B2-C1)
- German: A2 level
- Hungarian (native)

FIELDS OF EXPERTISE

- Higher Education Teaching
- Information Technology
- Electrical Power Engineering
- Power Electronics
- Electronics
- Electrical Machines and Drives
- Microcontrollers
- Printed Circuit Boards
- Electrotechnics
- Photovoltaics Systems
- Energy Storage
- Smart Grids
- Energy Management
- Nuclear Power Plants, Nuclear Physics
- Controller circuits

PROFESSIONAL EXPERIENCE

Assistant Lecturer

University of Miskolc, 2018.08.-2025.08.

Faculty of Mechanical Engineering and Informatics, Institute of Physics and Electrical Engineering

Main Responsibilities:

- Participation in industrial projects
- Teaching subjects in BSc, MSc, and specialized further education programs
- Writing scientific papers
- Conducting research
- Attending scientific conferences
- Supervising theses, dissertations, and other academic works
- Building experimental circuits and systems for research and teaching
- Organizing student recruitment events

Electrical Vehicle Maintenance Trainee

MÁV Zrt. Miskolc, 2017

Activities included renovation, major overhaul, and maintenance of V43 locomotives and BDV motor units.

EDUCATION

University of Miskolc

PhD: Hatvany József Informatics Doctoral School
2020-2025

Nuclear Power Plant Operations Professional engineer
2020-2021

Electrical engineer (MSc)
2018-2020

Electrical engineer (BSc)
2014-2018

INDUSTRIAL PROJECTS

- Bosch – GINOP-2.2.1-15-2017-00090 – E- Further development of coolant pumps and motor-cooling fans for electric vehicles to meet higher quality requirements.
- Thematic Excellence Program 2020: - Construction of a pyrolysis unit – Development of technologies to better utilize subsurface natural resources.
- OmegaSys – 2020-1.1.2-PIACI-KFI-2020-00147- Design of lifetime planning and failure prediction system to support facility management services.
- Conversion of CNG Bus to Electric – 2020-1.1.2-PIACI-KFI-2020-00138
- Installation and operation of medical mask production lines
- Construction of sludge dryer
- Development of wine bottling production line

SOFT SKILLS

- Teamwork and collaboration
- Precision and attention to detail
- Analytical thinking
- Autonomy
- Problem-solving mindset
- Intercultural competence
- Decision-making

DRIVING LICENSE

- Category B

MEASUREMENT TECHNOLOGY SKILLS

- Oscilloscope measurements
- Power quality analyzer measurements
- DAQ measurements with LabView
- Inverter and frequency converter testing
- PV diagnostics and troubleshooting
- EMC testing
- Electric motor drive testing
- Semiconductor diagnostics
- Laboratory measurements for teaching purposes

SOFTWARE SKILLS

- MATLAB / Simulink 2024
- MS Word, Excel, PowerPoint
- LabView 2019
- EPLAN Electric P8 (2023)
- Autodesk inventor
- Autodesk 3ds Max
- National Instruments Multisim
- C language
- Ansys Maxwell
- EasyEDA
- LTspice

MY MAIN PUBLICATIONS IN Q1-RANKED JOURNALS

- Boros, R.R.; Bodnár, I. Grid and PV Fed Uninterruptible Induction Motor Drive Implementation and Measurements. *Energies* **2022**, *15*, 708. <https://doi.org/10.3390/en15030708>
- Boros, R.R.; Bodnár, I. Effect of SPWM Inverter in Combination with Solar Uninterruptible Induction Motor Drive. *Energies* **2023**, *16*, 5061. <https://doi.org/10.3390/en16135061>
- Boros, R.R.; Jobbágy, M.; Bodnár, I. Optimized Real-Time Energy Management and Neural Network-Based Control for Photovoltaic-Integrated Hybrid Uninterruptible Power Supply Systems. *Energies* **2025**, *18*, 1321. <https://doi.org/10.3390/en18061321>