



# Iurie Nuca

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## WORK EXPERIENCE

30/09/2020 – CURRENT Craiova, Romania

### EARLY STAGE RESEARCHER UNIVERSITY OF CRAIOVA

- Project "ETOPIA", funded by EU programme Marie Skłodowska-Curie
- Electromagnetic compatibility and power quality analysis for electric railway traction systems
- Improvement of power quality in traction systems with converters
- Modeling, testing and data processing of electric drives and power electronics for EMC analysis
  - Matlab Simulink, PSim, LT Spice
- Research planning and publishing
- Conference organization

08/2016 – 30/04/2021 Chisinau, Moldova

### TEACHING ASSOCIATE PROFESSIONAL DEPARTMENT OF ELECTRICAL ENGINEERING, FACULTY OF ELECTRICAL ENGINEERING, TECHNICAL UNIVERSITY OF MD

- Lecturer
  - Numerical Methods (courses, laboratories, seminars)
  - Electrical Tools and Equipment (courses, laboratories)
  - Renewable Energy Sources (courses, laboratories, seminars)
  - Controllers and Programmable Relays (courses, laboratories, seminars)
  - Electric drives (courses, seminars, mentoring yearly project)
  - Electrotechnics (laboratories)
- Research
  - 09/2016-12/2018 Institutional Project „Towards an Energy Autonomy of Republic of Moldova” - researcher - electric drives and electric transportation
  - 01/2016-12/2018 Billateral Project with Timisoara Politechnical University, Hunedoara Faculty of Engineering “HELSAX” - researcher. Matlab, FEMM electromagnetic field modeling
  - 01/2020-01/2023 National Research Project "ELTRAC - Local Integrated Electric Traction Systems for Urban Public Transportation" - researcher. Matlab, electromagnetic compatibility
- Management:
  - Responsible for International Relationships and Research at the Department of Electrical Engineering. September 2018 - present
  - PR responsible of the department. September 2017 – present
  - Organizing the 2018 SIELMEN international conference at Chisinau

30/04/2018 – 29/09/2020 Chişinău, Moldova

### PROJECT COORDINATOR SENTINELS A.O.

- project coordination
- event management
- sports development

14/10/2018 – 14/12/2018 Luxembourg, Luxembourg

### ENGINEER KEYMITT

- Worked on developing a Smart Keylock application for a start-up venture

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- project coordination
- event management
- sports development

14/10/2018 – 14/12/2018 Luxembourg, Luxembourg

#### ENGINEER KEYMITT

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- Worked on developing a Smart Keylock application for a start-up venture
- coordinating IoT product development
- electronic development in Eagle CAD
- micro electric drives design
- embedded programming in C++ ( Keil uVision IDE, Arduino IDE)

01/2016 – 09/2017 Chisinau, Moldova

#### ALUMNI COORDINATOR ECOVISIO NGO

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- program coordination
- event coordination
- alumni community building
- project management
- project mentoring

14/02/2016 – 05/2017 Chişinău, Moldova

#### CO-FOUNDER/ OPERATIONS COORDINATOR "MAKERS" MOLDOVA

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- Co-founder and member of administrative board for Makers Moldova
- Community development
- Coordination of educational activities and staff
- Coordinating operations within the organization
- Managing and developing projects in following fields: electrical, electronic, IoT, embedded systems and renewable energy.

31/08/2013 – 28/02/2016 Chisinau, Moldova

#### ENGINEER "ITS INFORMBUSINESS" SRL

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- Worked in development of power electronics and electronic component for urbane electric vehicles (trolleybus and tram)
- Developing, testing and repairing electric and electronic devices
- Programming microcontrollers
- Assessment of environmental impact of products
- Mathematical modelling of electric drives
- Design of electric schemes
- Technical drawing
- Writing technical documentation

## EDUCATION AND TRAINING

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01/10/2020 – 30/09/2024 Craiova, Romania

#### JOINT PHD ELECTRICAL ENGINEERING University of Craiova & Politecnico di Milano

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Joint PhD between University of Craiova and Politecnico di Milano, part of the ETOPIA project, funded by Horizon 2020 research and innovation programme Marie Skłodowska-Curie: grant agreement No. 812753.  
Defended publicly the thesis on 27 September 2024.

**Field of study** Electricity and energy |

**Thesis** Efficiency of an Electric Traction System Concerning the Improvement of Electric Energy Quality and the Reducing of EMI through Multi-Domain Design of Electric Drive Systems, Including Power Converters

31/08/2013 – 31/01/2015 Chisinau, Moldova

#### ELECTRICAL ENGINEERING, MSC Technical University of Moldova

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- Thesis „**Traction System with Asynchronous Motor and Direct Torque Control**”

2008 – 2013 Cluj-Napoca, Romania

#### ELECTRICAL ENGINEER, BACHELOR Technical University of Cluj-Napoca

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- Thesis „**Modelling the work of an electric traction system with Direct Current Motor**”

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Website <http://tekwill.md/>

05/2018 – 10/2018

**CERTIFICATE** Climate Launchpad

- 1st place in Climate Launchpad - biggest competition on Eco Antrepreneurship Startups. Project GOOD SUN - QA of PV pannels with drones and big data
- Representing Moldova at the CLP finals in Edinburgh
- Trainings in Startup Pitching
- Trainings in Technical Antrepreneurial development

01/2016 – 05/2016 Germany

**CERTIFICATE OF CAPACITY TRAINING "SYSTEM INNOVATION LAB 2016 - SHAPING EUROPE'S ENERGY FUTURE"** Wuppertal Institut for Climate, Environment, Energy and Centre for Social Investment of Heibeldberg

- Project management
- System mapping
- Design Thinking theory
- System innovation
- Knowledge in Europe's Energy situation, with focus on Germany and Poland

03/2015 – 11/2015 Moldova

**ACTIVECO 2015 PROGRAM ALUMNI** EcoVisio

- Social entrepreneurship
- Project management
- Sustainable development

## LANGUAGE SKILLS

Mother tongue(s): **ROMANIAN**

Other language(s):

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken production	Spoken interaction	
<b>RUSSIAN</b>	C2	C2	C2	C2	C2
<b>ENGLISH</b>	C1	C1	C1	C1	C1
<b>FRENCH</b>	A2	B1	A1	A1	A2

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

## DIGITAL SKILLS

Microsoft Office | MATLAB&Simulink | C,C++,C# | Basic of Python | Organizational and planning skills | LT-Spice (Good) | PSIM medium level | Microsoft Visio & Microsoft Project

## JOB-RELATED SKILLS

### Job-related skills

- Ability to make research on comparing different equipments based on efficiency and simulation, ability gotten by working on research papers on trolleybus traction and command systems
- Testing and repairing electric and electronic devices and schemes
- Organizing a testing program for command systems of trolleybus traction.
- Developing and assembling electric devices
- Working on basic level with embedded system programming, mainly with Atmel 8-bit microcontrollers and C/C++ programming language.
- Matlab and Matlab Simulink programming
- Assessing basic environmental impact of a device
- Ability to search the market for better offers in electronic devices
- Systemic innovations using design thinking.

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## Internships

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### **Informbusiness SRL, Chişinău, Moldova**

- Organizing a testing program for command systems of trolleybus traction.
- Developing and assembling minor electronic converters
- Studying the command systems of trolleybus traction on different levels: command algorithm, power electronics and electric traction

### **ElectroTehnolImport SCI, Chişinău, Moldova**

- Soldering
- Developing small scale microelectronic systems
- Assembling contactor pannels
- Logistics for an electronic company

## **DRIVER'S LICENCE**

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### Driver's Licence

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Category B

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## List of Scientific publications 2011-2024

NUCA Iurie, MSc

PhD student and researcher at University of Craiova

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### 2024

1. Dusan Kostic, Lu Wan, Abduselam–Hamid Beshir, **Iurie Nuca**, Petre - Marian Nicolae, Flavia Grassi, "Testing and Validating Black-Box Model of an Industrial Variable Frequency Drive on Common-Mode Current Predictions", **Paper was accepted** for publication in proceedings of 2024 IEEE INTERNATIONAL SYMPOSIUM ON ELECTROMAGNETIC COMPATIBILITY, SIGNAL & POWER INTEGRITY

### 2023

2. **Iurie Nuca**, L. Wan, P.-M. Nicolae, A. Netoi, A. Popescu, D.Kostic, I.-D. Nicolae, "Design of Proportional-Resonant Control for Current Harmonic Compliance in Electric Railway Power Systems," 2023 IEEE Symposium on Electromagnetic Compatibility & Signal/Power Integrity (EMC+SIPI), Grand Rapids, MI, USA, 2023, pp. 13-17, doi: 10.1109/EMCSIPI50001.2023.10241757.
3. **Iurie Nuca**, L. Wan, D. Kostic, P.-M. Nicolae, I.-D. Nicolae, " Comparison of the Current Harmonic Pollution of Asynchronous Motor Drives With Field Oriented Control and Direct Torque Control," in proc. of 2023 Electromagnetic Compatibility Europe Symposium (EMC EU), Krakow, Poland, 2023. (presented, awaiting for publication)
4. **Iurie Nuca**, L. Wan, P.-M. Nicolae, I.-D. Nicolae, F. Grassi and X. Wu, "Analysis of Common Mode Currents and Harmonic Pollution at Supplying Induction Motors from Static Converters with Variable Modulation Frequency," 2023 *Power Quality and Electromagnetic Compatibility at Low Frequency (PQEMC-LF)*, Craiova, Romania, 2023, pp. 57-60, doi: 10.1109/PQEMC-LF58184.2023.10212014.
5. P.-M. Nicolae, M. Voinea, I. Sorin and **Iurie Nuca**, "About Analysis of Emissions from a Switched Mode Power Supply," 2023 *Power Quality and Electromagnetic Compatibility at Low Frequency (PQEMC-LF)*, Craiova, Romania, 2023, pp. 49-52, doi: 10.1109/PQEMC-LF58184.2023.10211676

### 2022

6. Dusan Kostic, Ileana Diana Nicolae, **Iurie Nuca**, Petre Marian Nicolae. "Analyzing the Influence of Harmonic Parameters on Accuracy Indices When Applying Wavelet Transform". In **Annals** of the University of Craiova, Electrical Engineering series, No. 46, Issue 1, 2022; ISSN 1842-4805, pp. 69-78 - (CNCSIS B+ category journal)
7. **Iurie Nuca**, Ilie Nuca; Petru Todos, Vadim Cazac, Dusan Kostic, "Power Quality Indices Of Six--Phase Asynchronous Motor Drive Prototype" **Annals** of the Faculty of Engineering Hunedoara - International Journal of Engineering . Nov 2022, Issue 4, ISSN: 1584-2665, p171-174.
8. P. -M. Nicolae, I. -D. Nicolae, **Iurie Nuca** and M. -S. Nicolae, "Determination of Electromagnetic Noise from a Power Supply Substation of Railway Traction Systems," in Proc. 2022 IEEE International Symposium on Electromagnetic Compatibility & Signal/Power Integrity (EMCSI), Spokane, WA, USA, 2022, pp. 619-624, doi: 10.1109/EMCSI39492.2022.9889567. ( Indexed in the ICI Journals Master List 2021 - ICV 2021: 100.00).

### 2021

9. Adrian Hurezeanu, **Iurie Nuca**, Ileana Diana Nicolae, Lucian Cristian Scărlătescu, Petre –Marian Nicolae. "About the Distorting Regime Induced by an Electronic Induction Heating System". 2021

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Asia-Pacific International Symposium on Electromagnetic Compatibility (APEMC), Nusa Dua - Bali, Indonesia, 2021, pp. 1-4, doi: 10.1109/APEMC49932.2021.9597162.

10. **Iurie Nuca**, Dusan Kostic, Petre-Marian Nicolae, Ilie Nuca\*, Vadim Cazac, Marcel Burduniuc. "Harmonic Decomposition and Power Quality Analysis of a Six-Phase Induction Motor Traction Drive with Fast Fourier Transform". 2021 13<sup>th</sup> International Conference on Electromechanical and Energy Systems – online conference, pp. 433-437. 6-8 October 2021. Romania – Iași, Moldova – Chișinău, DOI: <https://doi.org/10.1109/SIELMEN53755.2021.9600295>

#### 2020

11. **Iurie Nuca**, Petre-Marian Nicolae, Ilie Nuca, Alexandr Motroi, Vitalie Eșanu, "Power Quality and Electromagnetic Interference in a Trolleybus Traction Sistem," 2020 International Symposium on Electromagnetic Compatibility - EMC EUROPE, 2020, pp. 1-5, doi: 10.1109/EMCEUROPE48519.2020.9245641.

#### 2019

12. Vitalie Esanu; Alexandr Motroi; Ilie Nuca; **Iurie Nuca**. "Electrical Buses: Development and Implementation in Chisinau Municipality, Moldova". 2019 International Conference on Electromechanical and Energy Systems (SIELMEN). 9-11 Oct 2019. Craiova-Chisinau. DOI: 10.1109/SIELMEN.2019.8905794. <https://ieeexplore.ieee.org/document/8905794>
13. Petru Todos ; Ilie Nuca ; **Iurie Nuca**. "Development of Electrotechnical Industry, Research and Education in the Republic of Moldova". 2019 International Conference on Electromechanical and Energy Systems (SIELMEN). 9-11 Oct 2019. DOI: 10.1109/SIELMEN.2019.8905848. <https://ieeexplore.ieee.org/document/8905848>

#### 2017

14. Ilie Nuca, Marcel Burduniuc, **Iurie Nuca**, Ana Grigorița, Valeria Mirco. **New opportunities for internship for the technical university of Moldova' students.** 2017 International Conference on Electromechanical and Power Systems (SIELMEN). October 11-13, 2017, Iași, Romania/ Chișinău, Moldova. <http://ieeexplore.ieee.org/document/8123352/>. DOI: 10.1109/SIELMEN.2017.8123352

#### 2015

15. Ilie Nuca, **Iurie Nuca**, Alexandr Motroi, Vitalie Eșanu. **Information and Communication Technology in Urban Electric Transportation.** Annals of The University of Craiova, Electrical Engineering Series, No. 39, 2015. pp.150-156. ISSN 1842-4805. <http://elth.ucv.ro/fisiere/anale/2015/23.pdf>
16. Nuca Il., Eșanu V., Motroi A., **Iurie Nuca**. **Information Technologies Used In Electric Public Vehicles.** Proceedings of the 10-th International Conference on Electromechanical and Power Systems SIELMEN-2015, pp.388-393. ISBN 978-606-13-1560-4. 6 October 2015 Craiova, Romania, 8-9 October 2015 Chișinău, Rep. of Moldova.
17. Nuca Il., **Iurie Nuca**, Motroi Al., Olevschii G., Eșanu V. **Modernisation of Traction System with DC Motor of the Articulated Trolleybus UMZ-T1.** International Conference on Telecommunications, Electronics and Informatics. ICTEI 2015.
18. Nuca Il., **Iurie Nuca**, Motroi Al., Olevschii G., Eșanu V. **Development of electronic equipment for trolleybuses with Autonomous Power Source.** International Conference on Telecommunications, Electronics and Informatics. ICTEI 2015.

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## 2014

19. Nuca Il., Iurie Nuca, Motroi Al., Eșanu V. **Rehabilitation of the Tram DC Traction with Modern Power Converters**. Proceedings of The 8th Conference on Electrical and Power Engineering EPE-2014, October 16-18, 2014, Iasi, Romania.  
<http://ieeexplore.ieee.org/xpl/abstractAuthors.jsp?arnumber=6970000> . DOI:  
10.1109/ICEPE.2014.6970000
20. Iurie Nuca. **Environmental impact assessment of modernized Urban Passenger Electric Vehicles**. International Conference CRUNT-2014. Chișinău, 2014, pp.294-295. ISBN 978-9975-80-827-9. <http://www.utm.md/anunturi/crunt.pdf>

## 2013

21. Iurie Nuca, Nuca Il., Eșanu V., Munteanu C., Tilea I.. **Modeling of Electromagnetic Fields of the DC Traction Motor**. Proceedings of the 9-th International Conference on Electromechanical and Power Systems SIELMEN-2013, pp.388-393. ISBN 978-606-13-1560-4. 16 October 2013 Iasi, Romania, 17-18 October 2013 Chișinău, Rep. of Moldova.
22. Iurie Nuca, Nuca Il., Eșanu V. **Utilizarea mediului Ansoft Maxwell 3D pentru analiza campului electromagnetic al mașinilor electrice rotative (Analysis of the Rotating Electromagnetic Field in Electric Machines using Ansoft Maxwell 3D software)**. Technical- Scientific conference of colaborator, PhD candidates and students of UTM. Chisinau, 2013, Vol.1, pp. 403-407.

## 2012

23. Nuca Il., Eșanu V., Motroi A., Iurie Nuca. **Microprocessor control system of the SDMC-103 electronic equipment for DC trolleybus traction**. București: Buletinul AGIR nr.4/2012, pp.165-170. ISSN 2247-3548
24. Iurie Nuca, Nuca Il., Eșanu V. **Eficiența energetică a sistemului de tracțiune al troleibuzului cu MCC și control electronic (Energy Efficiency of trolleybus traction system with DC motor and electronci control)**. Technical- Scientific conference of colaborator, PhD candidates and students of UTM. Chisinau, 2012, Vol.1, pp. 437-441.

## 2011

25. Nuca Il., Todos P., Rîmbu Iu., Eșanu V., Iurie Nuca. **Recent state and trends in the electric urban vehicles traction**. The 8 th International Conference on Electrical Engineering and Energy Converters. Abstracts book, 22-23 Septemeber, 2011 Suceava, Romania, p.34.  
[http://www.usv.ro/els/pagini/past\\_editions/ELS\\_2011/34\\_EHV05.pdf](http://www.usv.ro/els/pagini/past_editions/ELS_2011/34_EHV05.pdf)
26. Cazac V., Nuca Il., Todos P., Iurie Nuca. **Control systems of the wiredrawing machine with annealing module**. Proceedings of the 8 International Conference on Electromechanical and Power Systems, Craiova-Chișinău-Iași, 13-15 october, 2011, pp.81-88
27. Rîmbu Iu., Nuca Il., Iurie Nuca. **Modelarea sistemului de tracțiune al troleibuzului cu motor asincron și control vectorial ( Modeling of the Traction System with Asynchronous Motor and Vector Control)**. Technical- Scientific conference of colaborator, PhD candidates and students of UTM. Chisinau, 2011, Vol.1, pp. 292-295.

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### List of Teaching Publications

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1. 10. 2024

1. Ilie NUCA, Iurie NUCA, Vadim CAZAC. "Acționarea electrică reglabilă a sistemului de pompare: Îndrumar metodic pentru teza de an" – year project guide. Published by Technical University of Moldova. 2022
2. Iurie Nuca. "Îndrumar de laborator pentru Informatică Aplicată "(**Applied informatics Lab guides**). Moodle UTM, 2019
3. Iurie Nuca. "Material didactic pe platforma Moodle pentru cursul Metode Numerice și Informatică Aplicată" (**Applied Informatics and Numerical Methods Moodle Course**). Moodle UTM 2019

1. 10. 2024

