



Europass Curriculum Vitae

Personal information

First name / Surname	Daniel FODOREAN
Business Address	28 Memorandumului, Cluj-Napoca, 400114, Cluj, ROMANIA
Telephone / Fax	+40-264-401828 +40-264-593117
E-mail	daniel.fodorean@emd.utcluj.ro
Date of birth / Gender / Nationality	22, November, 1977 / Male / Romanian

Current position **Professor at the Technical University of Cluj-Napoca (TUCN), ROMANIA**

Education and Degrees

August 2014	Habilitation degree at TUCN (Thesis title: <i>Optimum Design of the Motorization of Electric Vehicles based on Multiphysic Approach</i>)
July 2010-April 2013	Postdoctoral project, at TUCN, with the project title: Optimal energy management for light hybrid-electric vehicles.
2001-2005	Mutual PhD cooperation, between TUCN and UTBM. Title of the thesis (public presentation in French, on 12 of July 2005, at Belfort): " <i>Design and Prototype Realization of a Double Excited Synchronous Machine: Electric Vehicle Propulsion Application</i> " – original title in French " <i>Conception et réalisation d'une machine synchrone à double excitation : Application à l'entraînement direct</i> "
2001-2002	Master of Science in Electrical Engineering, at the Technical University of Cluj-Napoca
1996-2001	Engineer at the TUCN, Faculty of Electrical Engineering

Work experience

since 2020	Professor at TUCN, Cluj-ROMANIA
2015-2020	Assistant Professor at TUCN, Cluj-ROMANIA
Jan.2014, Jan.2015, Jan.2016	Research Industry project at <i>Siemens Industry Software</i> , Leuven, Belgium
Sept.2014, Sept.2015	Research Industry project at <i>Brose GmbH</i> , Wuerzburg, Germany
2011-2015	Lecturer at TUCN, Cluj-ROMANIA
2007-2009 (2013)	Associate Professor at Université de Technologie de Belfort-Montbéliard (UTBM), Belfort-FRANCE
2006-2007, 2009-2011	Assistant Lecturer at TUCN, Cluj-ROMANIA
2003-2004, 2005-2006	Teaching-research assistant at UTBM, Belfort-FRANCE
2001-2003, 2004-2005	Teaching-research assistant at TUCN, Cluj-ROMANIA

Invited professor / speaker (7 times as invited speaker at international scientific events, and 5 times as invited professor, abroad)

December 2020	Invited speaker: "Perspectives On The Propulsion Of Electric Vehicles" At The Autonomous Vehicles Conference 2020, organized by University of Gyor (Hungary) within the EU project EFOP-3.6.2-16-2017-00016 "Dynamics and control of autonomous vehicles in synergy with the requirements of automated transport systems", Dec.2020.
8-9 February 2017	Invited speaker at the ESPESA EU workshop, entitled "High speed drives and for sustainable electromechanical systems", Eindhoven Technical University, Holland, 8-9 February, 2017.
23 October 2014	Invited speaker at "IEEE Distinguished Lecturer Series - European Prospects on Transportation Electrification-Infrastructure and Powertrain", event organized under IEEE Vehicular Technology Society, Belfort, France, 23 rd of October 2014.
4 October 2014	Invited speaker at the "BROSE GmbH workshop on <i>State-of-the-art on Real-Time Simulations for Electrical Machines & Drives</i> ", IAPP/EMDA-LoOP EU project – 4 th October 2014 (Wuerzburg, Germany).
2013, 2014, 2016	Invited professor at Université de Haute-Alsace, Mulhouse, France, Aug.&May2016, Jun.2014, May2013.

May 2016	Invited professor: at Université de Havre, Havre, France, 22-28 May 2016
13 June 2013	Invited speaker at the "Summer school for Erasmus students at Technical University of Cluj-Napoca", event organized in the frame of IAPP European project "EMDA-LoOP" – June 2013.
June 2008	Invited speaker at an EU COST workshop", organized by Transylvania University from Brasov, Poiana-Brasov, Romania, June 2008.
December 2007	Invited speaker at a "Communication workshop on state of the art of electric vehicles", (workshop financed by French embassy in Romania), Brasov, December 2007.

Scientific event organizer

August 2017	Chair session (T26 Energy Storage) at the UPEC-2017 conference, Heraclyon, Greece.
May 2016	Special Session co-chair for IEEE AQTR 2016 (Real Time Solutions for Transport Applications), Cluj-Napoca-Romania.
November 2015	Special Session co-chair for IEEE VPPC 2015 (Design optimization and optimal energy management of Ultracapacitor/battery system for transportation Applications), Montreal-Canada.
September 2015	Special Session co-chair for IEEE Acemp-Optim-Electromotion 2015 (Energy Management Strategies for Hybrid Electric Vehicle Applications), Side-Turkey.

Personal skills & competences

Mother tongue	Romanian
Other language(s): <i>English</i>	Independent user for understanding (listening, reading), speaking and writing.
<i>French</i>	Independent user for understanding (listening, reading), speaking and writing.
Technical skills and competences	<ul style="list-style-type: none"> - Design, numerical modeling, optimization of the electrical machines (PMs and hybrid excited synchronous machines, with different rotor configuration, DC motors, induction cage motor, transformer, switched reluctance). - Electrical drives: design and construction of power static converters (dc/dc, dc/ac). - Control of electrical machine (scalar, vector control – DTC, FOC –, opened and closed loop control techniques). - Industrial informatics: programing in C and assembly language of microcontrollers (PIC products) and DSP (TMS320LF2407/28335).
Organisational skills and competences	<ul style="list-style-type: none"> - "Bureau Member" of the Electrical Engineering Department at UTBM (2008-2009). - Member in the scientific comity for diploma delivery at the UTBM and TUCN.
Editorial activity	<ul style="list-style-type: none"> - Scientific Secretary at the International Journal on Electrical Engineering and Transportation (IJEET), www.ijeet.org, edited by UTBM, since 2008. - Reviewer at IEEE Industrial Electronics Society, since 2008, at IEEE Vehicular Technology Society, since 2009 and IEEE Transactions on Industry Applications since 2014

Publications

ISI journals articles selection

- (7 books in national edition, 3 book-chapter in international edition, 18 WoS journal-articles, 14 other international journal-articles, 89 articles in proceedings of international conferences)
1. Claudia. V. Pop, D. Fodorean, "Purely electromagnetic propulsion system with two transmission levels – design, numerical and experimental results", IEEE Transactions on Industrial Electronics, ISSN 0278-0046, DOI: 10.1109/TIE.2022.3187582, Vol.70, Issue: 5, pp.4494-4504, May 2023.
 2. Nacu, R.C., Fodorean, D. "Lithium-Ion Cell Characterization, Using Hybrid Current Pulses, for Subsequent Battery Simulation in Mobility Applications", *Processes*, 2022, 10, 2108. <https://doi.org/10.3390/pr10102108>.
 3. Claudia. V. Pop, D. Fodorean, D.C. Popa, "Structural Analysis of an In-Wheel Motor with Integrated Magnetic Gear Designed for Automotive Applications", *Sustainability* 2022, 14, 12007. <https://doi.org/10.3390/su141912007>, ISSN 2071-1050.
 4. Claudia V. Pop, M. Essaid, L. Idoumghar, D. Fodorean, "Novel Differential Evolutionary Optimization Approach for an Integrated Motor-Magnetic Gear used for Propulsion Systems", *IEEE Access*, vol.9, pp.142114-142128, 10.1109/ACCESS.2021.3119523, October 2021, ISSN 2169-3536.
 5. Claudia Violeta Pop, D. Fodorean, C. Husar, C. Irimia, "Structural behavior evaluation of an in-wheel motor based on numerical and experimental approach", *Electrical Engineering (Springer)*, DOI: 10.1007/s00202-019-00774-0, Volume 102, Nr.1, pp.65-74, March 2020, ISSN 0948-7921.

6. D. Fodorean, L. Idoumghar, M. Breivilliers, P. Minciunescu, C. Irimia, "Hybrid Differential Evolution Algorithm employed for the Optimum Design of a High-Speed PMSM used for EV Propulsion", IEEE Transactions on Industrial Electronics, 2017, vol.64, n.12, pp.9824–9833, ISSN 0278-0046.
7. D. Fodorean, M. Sarrazin, Claudia Steluta Martis, J. Anthonis and H. Van der Auweraer, "Electromagnetic and Structural Analysis for a Surface Mounted PMSM used for Light-EV", IEEE Transactions on Industry Applications, vol.52, n.4, pp.2892-2899, July-August 2016, ISSN 0093-9994.
8. D. Fodorean: "Study of a High Speed Motorization with Improved Performances dedicated for an Electric Vehicle", IEEE Transactions on Magnetics, vol.50, n°2, paper no.7022804, February 2014.
9. D. Fodorean, L. Idoumghar, and L. Szabo, "Motorization for electric scooter by using permanent magnet machines optimized based on hybrid metaheuristic algorithm", IEEE Transaction on Vehicular Technology, vol.62, n.1, pp.39-49, January 2013, ISSN 0018-9545.

Research Projects

(8 as project manager – 2 with international industrial partners; more than 15 as team member)

Manager for National Projects

1. Project name "Smart conductive charging station, fixed and mobile, for electric propulsion transportation" (SMILE-EV). PN III-CNCSIS grant, code PN-III-P1-1.2-PCCDI-2017-0776. Manager: Contantin Filote (Univ. of Suceava); Responsible for TUCN: D. FODOREAN. Approved Budget, for November 2017 – October 2019: 7,5 mil lei (2,4mil lei-UTCN, aprox.550 kEUR).
2. Project name: Virtual platform for real time testing of electric vehicles with improved energetic performances (VIPER). PN III-CNCSIS grant, code PN-III-P2-2.1-BG-2016-0128. Approved Budget, for October 2016 – September 2018: 460 000 lei (aprox.100 000 €).
3. Project name: Efficient Lightweight Electro-Magnetic Propulsion System for Electric Vehicles (ELIMPUS). PN II-CNCSIS grant, code TE 30/2015. Approved Budget, for October 2015 – September 2017: 549 930lei.
4. Title: Hardware-in-the-Loop Modular Platform for Testing the Energy Management of Competitive & Highly-Efficient Hybrid-Electric Vehicles. PCCA grant, code 191/2012. Duration: July 2012 – June 2015. Budget 2 809 700lei + private budget of 949 200 lei.
5. Title: Intelligent hybrid vehicle for transportation of individual persons with reduced mobility. Project type/code TE/250, number: 32/28.07.2010. Duration: 28 July 2010-27 July 2013. Budget: 813,700 lei (aprox.200,000€).

Manager for International Projects

1. Title: Design of two types of special electrical machine. Project type: industry project between TUCN and XANTOS (Switzerland). Duration: March – May 2011. Budget: 15 387 €.
2. Title: Assistance for the manufacturing and the testing phases of special electrical machines. Project type: industry project between TUCN and HYTEN (Switzerland). Duration: July – December 2011. Budget: 6 486 €.

Patents (3)

1. D. Fodorean, "2-poles Modular-Skewed Rotor with Axially Sheets for Reluctant Synchronous Machines", OSIM, nr.134151/30.09.2021.
2. D. Fodorean, "Magnetic gear with transmission in steps, patent nr. 130450/30.03.2017.
3. M. Ruba and D. Fodorean, "SRM with rotor internal self-ventilation", patent nr. 128581/30.12.2014

Awards (10)

1. Included in the top 2% worldwide highly cited researchers, for entire carrier (evaluated period 1996-2020), study conducted by Stanford University (USA) and Elsevier.
2. Best Paper Award at ICRERA 2021 (Istanbul, Turkey); Best Paper Award at ICRERA 2024 (Nagasaki, Japan).
3. Excellences in Research Diploma in 2015, granted by Technical University of Cluj-Napoca, Dec.'15.

Membership

- IEEE Member since 2007;
- elevated to IEEE Senior grade in August 2018.

Summary of main results, obtained in the scientific activity

Books / book chapters	WoS Journal Articles	Internationally Indexed Journal Articles	Internationally Indexed Conference Articles	Patents	Manager for research projects	Hirsch Index in WoS
4/ 3	18	16	93	3	8	13