PERSONAL INFORMATION

Ioan ȘERBAN

ioan.serban@unitbv.ro

POSITION
IOSUD UTBv

PhD Coordinator
Doctoral studies field: Electrical Engineering
Since 2019

EXPERTISE FIELD AND RESEARCH INTEREST AREAS

Microgrids, control of renewable energy sources and energy storage systems, power electronics.

WORK EXPERIENCE

Oct. 2019 – present
Oct. 2014 – Sept. 2019
March 2009 - Sept. 2014

Professor (Habilitated)
Associate Professor
Lecturer

Transilvania University of Brasov, www.unitbv.ro

- Teaching: Power Electronics; Microgrids and distributed generation systems; Matlab/Scilab programming;
- Research: power electronic converters for grid and microgrid integration of renewable energy sources and energy storage systems.

Business or sector Academic

EDUCATION AND TRAINING

2010 - 2013

Post-doctoral researcher

Transilvania University of Brasov

- Frequency control in microgrids with renewable energy sources;

2004 - 2008

PhD in Electrical Engineering

Transilvania University of Brasov

- Hybrid power systems with renewable energy sources;
- Modelling and control of renewable energy generators;
- Power electronics converters for renewable energy generators.

1999 - 2004

BsC in Electrical Engineering

Transilvania University of Brasov

- Electrical engineering, automation, power electronics, electrical machines.

2007 - 2011

Trainings

- 2011 – Aalborg University, 4-month internship within the post-doctoral research programme;
- 2009 – National Technical University of Athens, short study visit about microgrids and renewable energy sources;
- 2008 – Aalborg University, 2-month study visit with the research topic „Holistic Modelling of Integrated Power Systems connected to the Grid”;
- 2007 – Aalborg University, attending the course “Power Electronics for Renewable Energy System”;

PERSONAL SKILLS

Mother tongue Romanian

Other language(s)

UNDERSTANDING		SPEAKING		WRITING
Listening	Reading	Spoken interaction	Spoken production	
English B2	B2	B2	B2	B2

Levels: A1/A2: Basic user - B1/B2: Independent user - C1/C2 Proficient user
Common European Framework of Reference for Languages

Communication skills

- Good communication skills gained through my experience as a teacher, as a team leader in research projects, and as a participant with oral presentations at international conference.

Organisational / managerial skills

- Abilities to organize activities within a team, acquired in research projects.

Job-related skills

- Expertise in power electronics systems, electrical generators for renewable energy sources, digital control systems for power electronics, thermal management of power converters;
- Highly experienced in modelling and analysis of electrical systems in Matlab/Simulink;
- Deep knowledge of rapid control prototyping (RCP) for power electronics converters (experienced with dSPACE control platforms);
- Experience in developing real-time simulations, hardware in the loop (HIL), as well as power-HIL systems;
- Excellent laboratory practical abilities;

Digital skills

SELF-ASSESSMENT				
Information processing	Communication	Content creation	Safety	Problem solving
INDEPENDENT USER	INDEPENDENT USER	INDEPENDENT USER	INDEPENDENT USER	INDEPENDENT USER

Levels: Basic user - Independent user - Proficient user
Digital competences - Self-assessment grid

Other computer skills:

- good command of office suite (word processor, spread sheet, presentation software, drawing software) and Latex
- good command of Matlab, Scilab, Python

ADDITIONAL INFORMATION

Publications (selection of most relevant ISI-WOS journal papers)

- **I. Serban**, S. Céspedes, C. Marinescu, C. A. Azurdia-Meza, J. S. Gómez and D. S. Hueichapan, "Communication Requirements in Microgrids: A Practical Survey," in *IEEE Access,* vol. 8, pp. 47694-47712, 2020. https://doi.org/10.1109/ACCESS.2020.2977928
- A. Marinescu, A.Taylor, S. Larke, **I. Serban**, C. Marinescu, "Optimizing Residential Electric Vehicle Charging under Renewable Energy: Multi-Agent Learning in Software Simulation and Hardware-in-the-loop Evaluation", International Journal of Energy Research, vol. 43, no. 8, June 2019, pp.3853-3868, https://doi.org/10.1002/er.4559
- **I. Serban**, "A control strategy for microgrids: Seamless transfer based on a leading inverter with supercapacitor energy storage system", *Applied Energy*, vol. 221, July 2018, pp. 490-507. https://doi.org/10.1016/j.apenergy.2018.03.122
- **I. Serban**, C.P. Ion, "Microgrid Control Based on a Grid-Forming Inverter Operating as Virtual Synchronous Generator with Enhanced Dynamic Response Capability", *International Journal of Electrical Power and Energy Systems*, vol. 89, July 2017, pp. 94-105. https://doi.org/10.1016/j.ijepes.2017.01.009
- **I. Serban**, "Power Decoupling Method for Single-Phase H-Bridge Inverters with no Additional Power Electronics", *IEEE Transactions on Industrial Electronics*, vol. 62, no. 8, Aug. 2015, pp. 4805 – 4813. https://doi.org/10.1109/TIE.2015.2399274
- **I. Serban**, C. Marinescu, "Control Strategy of Three-Phase Battery Energy Storage Systems for Frequency Support in Microgrids and with Uninterrupted Supply of Local Loads", *IEEE Transactions on Power Electronics*, vol. 29, no. 9, Sept. 2014, pp. 5010-5020. https://doi.org/10.1109/TPEL.2013.2283298

- **I. Serban**, R. Teodorescu, C. Marinescu, "Energy Storage Systems Impact on the Short-Term Frequency Stability of Distributed Autonomous Microgrids, an Analysis Using Aggregate Models", *IET Renewable Power Generation*, vol 7, no. 5, Sept. 2013, pp. 531-539. https://doi.org/10.1049/iet-rpg.2011.0283 – **Paper awarded with the 2015 Premium for Best Paper in IET Renewable Power Generation.**

Projects

- Young Research Team project, PN-II-RU-TE-2014-4-0359, 2015-2017, "Solutions to enhance the dynamic stability of microgrids with renewable energy sources" – project leader;
- PhD national competition project, CNCSIS-TD303/2007-2008: "Contributions to the development of hybrid power systems with renewable energy sources" – project leader;
- ERANet - LAC Transnational Joint Call on Research and Innovation ELAC2015/T10 - 0761 RETRACT, 2017-2019, "Enabling Resilient Urban Transportation Systems in Smart Cities" – project member;
- FP6, CRISTAL 038406/DG TREN, 2007-2009, "Control of renewable integrated systems targeting advanced landmarks" – project member;
- IDEAS national competition project, CNCSIS-134/2007-2010, „Renewable Energy Sources and their Integration in Smart Hybrid Grids" – project member;
- Partnerships national competition project, D3 21062/2007-2010, „Hybrid Hydro-Wind Energy Structure" – project member;
- Partnerships National Competition Project, D1 110004/2007-2010, "Intelligent distributed system for improving the efficiency of Hydroelectric plants" – project member;
- 2005/2006 – PhD student scholarship from "World Federation of Scientists".

Awards

- **2015 Premium Award for Best Paper in IET Renewable Power Generation** - https://digital-library.theiet.org/content/journals/iet-rpg/info/prizes;
- Rewarding research results by the national research agency UEFISCDI, programme ISI articles 2008, 2011-2015, 2017, 2018, 2019;
- Rewarding research results by the national research agency UEFISCDI, programme Patents 2017;
- Best paper presentation in session "TT02 8 – Power Electronics II" , within the 39th Annual Conference of the IEEE Industrial Electronics Society - IECON 2013;
- Prize for excellent research activity, within the Transilvania University awards, 2007.

Memberships

- IEEE (Institute of Electrical and Electronics Engineers), IES (Industrial Electronics Society).

Citations

- Google Scholar: >950 https://scholar.google.ro/citations?user=F_yaERoAAAAJ&hl=ro
- Scopus: >650 https://www.scopus.com/authid/detail.uri?authorId=22434123300
- Web of Science: >500 https://publons.com/researcher/1451618/ioan-serban/

H Indexes

- Google Scholar: H=16;
- Scopus: H=12;
- Web of Science: H=11.

ORCID iD

- http://orcid.org/0000-0002-8515-6439

27.03.2020

ANNEX to CV

LIST OF RELEVANT PUBLICATIONS /RESEARCH (selection)

1.	**I. Serban**, S. Céspedes, C. Marinescu, C. A. Azurdia-Meza, J. S. Gómez and D. S. Hueichapan, "Communication Requirements in Microgrids: A Practical Survey," in IEEE Access, vol. 8, pp. 47694-47712, 2020. https://doi.org/10.1109/ACCESS.2020.2977928
2.	A. Marinescu, A.Taylor, S. Larke, **I. Serban**, C. Marinescu (2019), "Optimizing Residential Electric Vehicle Charging under Renewable Energy: Multi-Agent Learning in Software Simulation and Hardware-in-the-loop Evaluation", International Journal of Energy Research - vol. 43, no. 8, June 2019, pp.3853-3868, https://doi.org/10.1002/er.4559
3.	C. P. Ion, **I. Serban**, (2019), "Seamless Integration of an Autonomous Induction Generator System into an Inverter-Based Microgrid", Energies, vol. 12, no. 4, p. 638, Feb. 2019. https://doi.org/10.3390/en12040638
4.	**I. Serban**, (2018), "A control strategy for microgrids: Seamless transfer based on a leading inverter with supercapacitor energy storage system", Applied Energy, vol. 221, July 2018, pp. 490-507. https://doi.org/10.1016/j.apenergy.2018.03.122
5.	**I. Serban**, (2018), "Active Load Control for dynamic frequency support and harmonic compensation in autonomous microgrids", ASCE's Journal of Energy Engineering, vol. 144, no.2, Apr. 2018. https://doi.org/10.1061/(ASCE)EY.1943-7897.0000518
6.	D. Munteanu, **I. Serban**, L. Barote, C. Marinescu, (2018), "Dynamic performance analysis of a photovoltaic power plant with integrated storage for microgrids dynamic support", ASCE's Journal of Energy Engineering, vol. 144, no. 1, Feb. 2018. https://doi.org/10.1061/(ASCE)EY.1943-7897.0000514
7.	C.P. Ion, **I. Serban**, (2018), "Self-Excited Induction Generator Based Microgrid with Supercapacitor Energy Storage to Support the Start-up of Dynamic Loads", Advances in Electrical and Computer Engineering , vol. 18, no. 2, 2018. https://doi.org/10.4316/AECE.2018.02007
8.	**I. Serban**, C. Marinescu, "Flexible Solution for Grid-Connected Operation of Microgrids, Based on a Leading Inverter With Supercapacitor Energy Storage", 5th IEEE International Energy Conference (ENERGYCON) - Towards Self-healing, Resilient and Green Electric Power and Energy Systems, June 3-7, 2018, Limassol, Ciprus. https://doi.org/10.1109/ENERGYCON.2018.8398776
9.	**I. Serban**, C.P. Ion, (2017), "Microgrid Control Based on a Grid-Forming Inverter Operating as Virtual Synchronous Generator with Enhanced Dynamic Response Capability", International Journal of Electrical Power and Energy Systems, vol. 89, July 2017, pp. 94-105. https://doi.org/10.1016/j.ijepes.2017.01.009
10.	**I. Serban**, C.P. Ion, "Control Strategy Aiming at Increasing The Dynamic Response Capability of Autonomous Microgrids", The 26th IEEE International Symposium on Industrial Electronics (ISIE), 19-21 June 2017, Edinburgh, Scotland, UK. https://doi.org/10.1109/ISIE.2017.8001325
11.	**I. Serban**, C. Marinescu, D. Munteanu, "Performance analysis of a SiC-based single-phase H-bridge inverter with active power decoupling", 18th IEEE European Conference on Power Electronics and Applications (EPE), 5-9 Sept. 2016, Karlsruhe, Germany. https://doi.org/10.1109/EPE.2016.7695639
12.	**I. Serban**, (2015), "Power Decoupling Method for Single-Phase H-Bridge Inverters With No Additional Power Electronics," IEEE Transactions on Industrial Electronics, vol. 62, no. 8, pp. 4805-4813, Aug. 2015. https://doi.org/10.1109/TIE.2015.2399274
13.	**I. Serban**, C. Marinescu, (2014), "Battery energy storage system for frequency support in microgrids and with enhanced control features for uninterruptible supply of local loads", International Journal of Electrical Power and Energy Systems, vol. 54, Jan. 2014, pp. 432-441. https://dx.doi.org/10.1016/j.ijepes.2013.07.004
14.	**I. Serban,** C. Marinescu, (2014), "Control Strategy of Three-Phase Battery Energy Storage Systems for Frequency Support in Microgrids and with Uninterrupted Supply of Local Loads", IEEE Transactions on Power Electronics, vol. 29, no. 9, Sept. 2014, pp. 5010-5020. https://doi.org/10.1109/TPEL.2013.2283298
15.	**I. Serban**, C. Marinescu, (2014), "Design and experimental investigations of a smart battery energy storage system for frequency control in microgrids", Journal of Renewable and Sustainable Energy, vol.6, no.2, pp. 023130, March 2014. https://doi.org/10.1063/1.4873995

16.	**I. Serban**, R. Teodorescu, C. Marinescu, (2013), "Energy Storage Systems Impact on the Short-Term Frequency Stability of Distributed Autonomous Microgrids, an Analysis Using Aggregate Models", IET Renewable Power Generation, vol 7, no. 5, Sept. 2013, pp. 531-539. https://dx.doi.org/10.1049/iet-rpg.2011.0283
17.	**I. Serban**, "A novel transistor-less power decoupling solution for single-phase inverters", 39th Annual Conference of the IEEE Industrial Electronics Society (IECON 2013), 10-13 Nov. 2013, Vienna, Austria. https://doi.org/10.1109/IECON.2013.6699354
18.	**I. Serban**, C. Marinescu, (2012), "A sensorless control method for variable-speed small wind turbines, Renewable Energy", Elsevier, 2012, 43, pp. 256-266. https://dx.doi.org/10.1016/j.renene.2011.12.018
19.	**I. Serban**, C. Marinescu, (2011), "Aggregate load-frequency control of a wind-hydro autonomous microgrid", Renewable Energy, Elsevier, 2011, 36, (12), pp. 3345-3354. https://dx.doi.org/10.1016/j.renene.2011.05.012