

PERSONAL INFORMATION

Ioan Serban



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POSITION Associate professor

WORK EXPERIENCE

Oct. 2014 - present

Associate professor

Transilvania University of Brasov

- Teaching: Power Electronics; Microgrids and distributed generation systems; Matlab programming;
- Research: power electronic converters for interfacing renewable energy sources and energy storage systems for grid and microgrid applications;

Business or sector Academic

June 2013-Sept.2014
March 2009-May 2010

Lecturer

Transilvania University of Brasov

- Teaching: Power Electronics; Microgrids and distributed generation systems; Matlab programming, LV Electrical installations.
- Research: power electronic converters for interfacing renewable energy sources and energy storage systems for grid and microgrid applications;

Business or sector Academic

EDUCATION AND TRAINING

2010 - 2013

Post-doctoral researcher

Transilvania University of Brasov

- Research theme: 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

MsC 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 and teamwork experience gained as member within national and international research projects;
- Regular participation at international conferences with oral presentations;

Organisational / managerial skills

- Leader of the research project Young Research Team “Solutions to enhance the dynamic stability of microgrids with renewable energy sources”, PN-II-RU-TE-2014-4-0359/2015;
- Leader of the PhD research project “Contribution to the development of hybrid power systems with renewable energy sources”, CNCSIS TD303/2007;

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 with Matlab/Simulink environment;
- Deep knowledge of rapid control prototyping for power electronics converters (experienced with dSPACE DS1103 control platform);
- Developing real-time simulations, hardware in the loop (HIL), as well as power-HIL systems;
- Excellent laboratory practical abilities;

Digital competence

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](#)

- good command of MS office suite (Word, Excel, PowerPoint, Visio);
- advanced level in Matlab/Simulink, dSPACE/ControlDesk;
- programming languages: Standard C.

Driving licence B

ADDITIONAL INFORMATION

Publications

Selected recent journal papers:

- **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, pp. 94-105, July 2017.
- **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.
- **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.
- **I. Serban**, C. Marinescu, “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.

- **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. – **Paper awarded with the 2015 Premium for Best Paper in IET Renewable Power Generation.**



Selected recent papers presented at international conferences:

- **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.
- **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.
- **I. Serban**, C. Marinescu, A.-B. Forcos, "Single-phase voltage source converter with active power decoupling operating in both grid-connected and island modes", IEEE 6th International Symposium on Power Electronics for Distributed Generation Systems (PEDG), 22-25 June 2015, Aachen, Germany.
- **I. Serban**, "Frequency restoration in microgrids by means of distributed control with minimum communication requirements", IEEE 23rd International Symposium on Industrial Electronics (ISIE), 1-4 June 2014, Istanbul, Turkey;
- **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.

ORCID profile: <http://orcid.org/0000-0002-8515-6439>

Patents

- **I. Serban**, C. Marinescu, "Device and control method with three-phase dump load for autonomous generators with renewable energy sources", OSIM patent RO-126355/30.01.2017;
- **I. Serban**, "Circuit and decoupling method of the pulsating power for single-phase inverters", RO-130090/A0, patent pending;
- **I. Serban**, C. Marinescu, "Sensorless control method of speed and power for permanent magnets small wind generators", RO-127975/A0, patent pending;

Research grants and 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;
- 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;

Awards

- 2015 Premium Award for Best Paper in IET Renewable Power Generation;
- Rewarding research results, by the national research agency UEFISCDI, 2008, 2011-2015;
- 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;

Scientific reviewer

IEEE Transactions on Industrial Electronics, IEEE Transactions on Power Electronics, IEEE Journal of Emerging and Selected Topics in Power Electronics, IEEE Transactions on Sustainable Energy, Journal of Renewable and Sustainable Energy, IET Renewable Power Generation, IEEE Transactions on Smart Grid.

Membership in scientific /professional societies

IEEE, IES member (since 2008).