Curriculum Vitae

PERSONAL DETAILS

Address:	Slobodan N. Vukosavic, PhD Electrical Engineering Department of Electrical Engeering, ETF, University of Belgrade Kralja Aleksandra Obrenovica 73, 11000 Beograd, Serbia
D.o.B:	27 January 1962
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EMPLOYMENT HISTORY

2002 – present	**University of Belgrade, Dept. of Electrical & El. Eng., Serbia & Montenegro** Full-time Professor
2002 – 2006	**Liverpool John Moores University, School of Engineering** Visiting researcher on the EPSRC project GR/R64452/01
2000 – present	**MOOG Electrics, Genoa, Italy** Engineering Consultant (contract work)
1994 – 2002	**University of Belgrade, Dept. of Electrical & Electronic Eng., Yugoslavia** Assistant Professor and subsequently Associate Professor (full-time)
1994 – 1999	**Vickers Electrics, Casella, Genoa, Italy** Engineering Consultant (contract work)
1992 – 1994	**Vickers Electrics, Settimo Milanese, Milano, Italy** Electronics Chief Engineer (full-time)
1989 – 1992	**EE Institute 'Nikola Tesla', Belgrade, Yugoslavia** R&D engineer (full-time)
1988 – 1988	**Emerson Electric, ESCD, St. Louis, MO, USA** R&D engineer (full-time)
1985 – 1987	**LAR-Laboratories, INT Institute, Belgrade, Yugoslavia** R&D engineer (full-time)

ROLES AND AWARDS

2015 –	Member of Serbian Academy of Sciences and Arts (SASA)
2002 –	Member of Academy of Engineering Sciences of Serbia (AESS)
---	Tesla award for achievements in electrical engineering
---	Editor and associated editor of scientific journals IET-EPA, IEEE-Trans. on EC, Electronics, Facta Universitatis and other
---	Mentor of 12 PhD thesis, 19 MS thesis, 75 B Sci thesis
2003-2009	Department Head of the Power Engineering Dpt. @ University of Belgrade
2003 – 2005	North Eastern University, Boston (MA) U.S.A, Adjunct Professor

BRIEF BIOGRAPHY

Slobodan N. Vukosavic graduated with honours at the Electrical Engineering Department, University of Belgrade. He got his diploma in Power engineering in 1985, and his diploma in Electronics in 1986. He defended the magisterial thesis entitled "Control algorithms for the voltage source inverters" in 1987. The doctoral dissertation "Adaptive digital control of induction motors" is defended 1989. with the same University.

Since 1985, he worked as an R/D engineer with "Nikola Tesla" Institute in Belgrade, engaged with research, development and design of static power converters, electrical drives and digital control systems for industrial and military applications. Relevant projects were closely related with his magisterial thesis, PhD thesis, and his first papers. In 1988, he joined Electronic Speed Control Division of Emerson-Electric in St. Louis, where he developed and patented sensorless controller for brushless permanent magnet motors in HVAC applications. He also developed asymmetrical switched reluctance machines and original power converter topology for SRM supply. Invited by Vickers-Electric, manufacturer of hydraulic actuators, he joined their new R/D team, developing electric actuators for industrial robots. Leading the R/D with Vickers Electric, and later on with MOOG-Electric, he developed motion control products for the car manufacturers and automotive industry in Europe.

He started teaching at the Electrical Engineering Department, University of Belgrade part-time in 1993. and full time from 1995. He was elected associate professor in 1998. and full professor in 2003. In 2003, he was elected adjunct professor at the North Eastern University, Boston. In cooperation with Imperial College, London, he developed a new curriculum in Mechatronics. He established two R/D laboratories: Laboratory for digital control of electrical drives and Laboratory for electrical vehicles. In cooperation with other universities and companies, the laboratories completed 16 international and 50 national R/D projects. He mentored 74 diploma thesis, 35 master thesis and 16 PhD thesis.

He conducted research and design of motion control algorithms, servo-amplifiers and servo motors for production automation and industrial robots. As the team leader in R/D departments of Vickers-Electric and Moog, he conducted design and deployment of motion control solutions and several original methods and devices. Developments include one of the first multi-axis servo-amplifiers with proprietary algorithms for the suppression of the mechanical resonance and torsional oscillations, the algorithms for trajectory optimization and the control laws that reduce the losses and increase the energy efficiency. His motion control products and devices are mainly used at European car manufacturers, accounting for more than 80.000 servo axis. Large power, high reliability servo-amplifiers developed in cooperation with Moog are widely used for running the flight simulators and high-pressure injection molding machines.

S. N. Vukosavic published over 250 papers, 64 of them in journals on JCR list. He wrote 10 books, including *Digital Control of Electrical Drives*, "电机" (Electrical motors), *Electrical Machines и Grid-Side Converters Design and Control* published by Springer. According to Scopus, his papers were cited 3300 times (excluding self citations) with h = 35.

He is associate editor of *IEEE Transactions on Energy Conversion*, member of editorial board and guest editor of international journal *Electronics*, member of editorial board of international journal *Facta Universitatis: Electronics and Energetics*. S. N. Vukosavic is member of program boards of *International Symposium on Industrial Electronics* (INDEL) and *International Symposium on Power Electronics*. He is also member of the Advisory Editorial Board of International Journal of Electrical Power & Energy Systems, and served as associate editor for *IET-EPA*.

S. N. Vukosavic is member of the Serbian Academy of Sciences and Arts (SASA) and president of the SASA board for energy. In 2021, he was elected secretary of Department for technical sciences at SASA. He is also a member of Academy of Engineering Sciences of Serbia and Senior member of the IEEE and member of Atiner institute for education and research.

RESEARCH

Key Textbooks:

- Slobodan N. Vukosavić, „Grid-Side Converters Control and Design“, Springer, New York 10013, USA, 2018, ISBN 978-3-319-73277-0, 266 pages. (link)
- Slobodan N. Vukosavić, „Electrical Machines“, Springer, New York 10013, USA, 2013., ISBN 978 1-4614-0399-9, Library of Congres 2012944981, 649 pages. (link)
- （塞尔维亚） 斯洛博丹 N. 乌克塞维克, "电机" - 著 余龙海 等译, (Slobodan N.Vukosavic, "Elektromotori", translated by Yu Longhai) China Machine Press / Machine Industry Press, 2015., ISBN 978-7-111-48627-5
- Slobodan N. Vukosavić, „Digital Control of Electrical Drives“, Springer, New York 10013, USA, 2007., ISBN 978 0-387-25985-7, Library of Congres 2006935130, 352 pages. (link)

Selected patents:

- S. N. Vukosavic, "Third harmonic commutation control system and method", USA Patent 4912378, 27 March 1990, applied in electronic washing machines, Emerson Electric Co.

Selected articles:

1. S. Vukosavic, V. R. Stefanovic, "SRM Inverter Topologies: A Comparative evaluation", *IEEE Trans. Ind. Appl*., vol. 27, no. 6, pp. 1034-1047, Nov./Dec. 1991.
2. S. N. Vukosavic, M. R. Stojic, "Suppression of Torsional Oscillations in a High-Performance Speed Servo Drive", *IEEE Trans. Ind. Electron.,* vol. 45, no. 1, pp. 108-117, Feb. 1998.
3. V. Vasic, S. N. Vukosavic, E. Levi, "A stator resistance estimation scheme for speed sensorless rotor flux oriented induction motor drives", *IEEE Trans. Energy Convers.*, vol. 18, no. 4, pp. 476-483, 2003.
4. S. N. Vukosavic, E. Levi, "Robust DSP-based efficiency optimisation of a variable speed induction motor drives", *IEEE Trans. Ind. Electron.*, vol. 50, no. 3, pp. 560-570, 2003.
5. E. Levi, M. Jones, S. N. Vukosavic, H. A. Toliyat, "A novel concept of a multiphase, multi-motor vector controlled drive system supplied from a single voltage source inverter", *IEEE Trans. Power Electron.,* vol. 19, no. 2, pp. 320-335, 2004.

Recent articles:

6. Slobodan N. Vukosavic, Ljiljana S. Peric, Stanimir S. Susic, "A Novel Power Converter Topology for Electrostatic Precipitator," *IEEE Transactions on Power Electronics*, vol. 31, no. 1, pp. 152-164, Jan. 2016.
7. Slobodan N. Vukosavic, Ljiljana S. Peric, Emil Levi, "AC Current Controller with Error-Free Feedback Acquisition System", *IEEE Transactions on Energy Conversion*, vol. 31, no. 1, pp. 381-391, Jan. 2016.
8. Slobodan N. Vukosavic, Ljiljana S. Peric, Emil Levi, "A Three-phase Digital Current Controller with Improved Performance Indices", *IEEE Transactions on Energy Conversion*, vol. 32, no. 1, March 2017, pp. 184-193, DOI: 10.1109/TEC.2016.2606663, 2016, Article number 7562529
9. Slobodan N. Vukosavic, Ljiljana S. Peric, "High Precision Active Suppression of DC Bias in AC Grids by Grid Connected Power Converters", *IEEE Trans. Ind. Electron.,* vol. 64, no. 1, Jan. 2017, pp. 857-865, DOI: 10.1109/TIE.2016.2542126
10. Slobodan N. Vukosavic, Ljiljana S. Peric, Emil Levi, "Digital Current Controller with Error-Free Feedback Acquisition and Active Resistance", *IEEE Trans. Ind. Electron.,* vol. 65, no. 3, pp. 1980-1990, March 2018.

The impact

Science citation index (SCI) obtained from "Scopus/JCR" includes SCI > 3300 citations N = 117 publications, excluding self-citations, and indicates an h-factor of 35.

Recent interests

- Control, protection, disturbance suppression & robustness of ac grids with electronically controlled & distributed sources, active loads and programmable storage. Design of distributed control features that improve stability, disturbance suppressions and robustness of "electronic" ac grids. Suppression of reflections in ac grids.
- On-line monitoring, diagnostics and early fault detection of (1) electronic power converters w/ wide-bandgap devices. (2) Electrical machines. Estimation of key parameters and states, the use of evolutionary algorithms in analyzing the fault mechanisms, predicting the faults and attempting the appropriate measures.
- Differential-evolution in designing electrical machines, high-force-density and low-ripple linear actuators.
- Subresonant converter topologies in medium voltage regenerative dc/dc converters (4 battery interfaces, traction applications, static power transformers, smart grids etc.)
- Digital current loops in grid-side converters with LCL-output: Improving the output impedance to improve stability
- Improving energy harvesting of wind and solar plants by designing "faster than MPPT" controllers.
- Distributed computing in ac grids - improving the election process in blockchain-based smart contracting