# Curriculum Vitae

## PERSONAL DETAILS


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|---|---|
| Address: | Slobodan N. Vukosavic, |
| | Beograd, Serbia |
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## EDUCATION AND QUALIFICATIONS

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|---|---|
| 1987–1989 | **University of Belgrade, Yugoslavia, Dept. of Electrical and Elec. Engineering** PhD studies. Thesis title: "Microprocessor adaptive control of the speed and position with a squirrel cage induction motor". |
| 1986–1987 | **University of Belgrade, Yugoslavia, Dept. of Electrical and Elec. Engineering** MPhil studies. Thesis title: "Algorithm for fast closed loop control of the single-phase inverter output voltages and currents". |
| 1981–1985/86 | **University of Belgrade, Yugoslavia, Dept. of Electrical and Elec. Engineering** Dipl. Ing. (B.Eng. Honours) in Electrical Engineering, graduated 1985. GPA 9.84 (5-10), awarded 'the best in the cohort" ribbon.<br>Dipl. Ing. (B.Eng. Honours) in Electronic Engineering, graduated 1986. GPA 9.24 (5-10). |

## EMPLOYMENT HISTORY

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| **2002 – present** | **University of Belgrade, Dept. of Electrical & El. Eng., Serbia & Montenegro**<br>Full-time Professor |
| **2002 – 2007** | **North Eastern University, Boston (MA) U.S.A**<br>Adjunct Professor |
| **2002 – 2006** | **Liverpool John Moores University, School of Engineering**<br>Visiting researcher on the EPSRC project GR/R64452/01 |
| **2000 – present** | **MOOG Electrics, Genoa, Italy**<br>Engineering Consultant (contract work) |
| **1994 – 2002** | **University of Belgrade, Dept. of Electrical & Electronic Eng., Yugoslavia**<br>Assistant Professor and subsequently Associate Professor (full-time) |
| **1998 – 2000** | **Emerson Electrics, St. Louis, MO, USA**<br>Engineering Consultant (contract work) |
| **1994 – 1999** | **Vickers Electrics, Casella, Genoa, Italy**<br>Engineering Consultant (contract work) |
| **1992 – 1994** | **Vickers Electrics, Settimo Milanese, Milano, Italy**<br>Electronics Chief Engineer (full-time) |
| **1989 – 1992** | **EE Institute 'Nikola Tesla', Belgrade, Yugoslavia**<br>R&D engineer (full-time) |
| **1988 – 1989** | **Emerson Electric, ESCD, St. Louis, MO, USA**<br>R&D engineer (full-time) |
| **1985 – 1987** | **LAR-Laboratories, INT Institute, Belgrade, Yugoslavia**<br>R&D engineer (full-time) |

## BRIEF BIOGRAPHY

Prof. Slobodan N. Vukosavić, Ph.D. EE, Full Member of Academy of Engineering Sciences of Serbia (AESS) from 1998, was born on January 27, 1962. in Sarajevo, by mother Ankica, b. Čekić, and father Nikota. He obtained his B.Sc. and Ph.D. degrees at the School of Electrical Engineering, University of Belgrade in 1985 and 1989, respectively. He is elected an associate professor at the University Belgrade in 1998, and for full professor in 2003. He is currently the Head of The Power Engineering Department. He was visiting professor, lecturer at

postgraduate courses, and gave seminars at technical institutes and universities in Boston (NEU), Novi Sad, Banja Luka and Liverpool. He joined ESCD Laboratory of Emerson Electric, St. Louis, in '88, conducted research in the field of SR drives and sensorless drives. With Vickers Electric R/D team since '91, he developed motion control products for industrial robots in use at major EU car manufacturers.

His interests include electrical machines, motion control (MC) technologies applied to general automation, embedded DSP solutions in power electronics and electrical drives (PED), power conversion, clean and renewable energy technologies. In the field of electrical machines, design and control resulting in an increased efficiency and reliability, multiphase machines, SR machines, and the application of DSP technologies in monitoring and diagnostics of large machines. MC research is focused on transmission-less structures with linear motors, and performance improvement of conventional robots by anti-resonant controllers, suppressing the mechanical resonance in compliance-critical, flexible transmission. Proprietary control & tuning for MC systems extend the bandwidth, reduce stiffness and allow for shorter cycles. His R/D activity in PED include the motor-converter integration, efficiency optimized control, switching techniques reducing the insulation stress, state reconstruction for sensorless drives and parameter estimation focused on efficiency, robustness and diagnostics. Efforts in the field of energy conversion include novel topologies and embedded control providing reduced conversion losses, and concede savings on iron, copper and power semiconductors. His interest include electrostatic precipitation (ESP) applied to filtering pollution gasses released by power plants and industry. His over 100 scientific papers are cited in leading international publications, including Wiley Encyclopaedia of E&E Engineering. His papers were cited more than 1200 times in JRC-enlisted journals. He is member of the Serbian national academy of engineering, and he also served as IEC TC9 member, IEEE and IEE reviewer, member of the of the Belgrade University Council, and Head of the Power engineering department. His students won the 1'st prize at the IEEE "Future energy challenge" contest in 2005. He published several textbooks and monographs, the most recent one being *Electrical Machines,* published in 2013. by Springer.

## RESEARCH

### ***Textbooks:***

- Slobodan N. Vukosavić, Digital Control of Electrical Drives, Springer, New York 10013, USA, 2007., ISBN 978-0-387-25985-7, Library of Congres 2006935130
- Slobodan N. Vukosavić, „Electrical Machines", Springer, New York 10013, USA, 2013., ISBN 978 1-4614-0399-9, Library of Congres 2012944981

### ***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.

### ***International Journal publications:***

1. M. R. Stojic, S. N. Vukosavic: "Design of microprocessor-based system for positioning servomechanism with induction motor", IEEE Transactions on Industrial Electronics, Vol. 38, No. 5, October 1991, pp 369-378
2. S.Vukosavic, V.R.Stefanovic: "SRM Inverter Topologies: A Comparative evaluation", IEEE Transactions on Industrial Applications, Vol. 27, No. 6, Nov/Dec. 1991, pp 1034-1047
3. V. Vuckovic, S. Vukosavic: "Control algorithm for the inverter-fed induction motor drive with DC current feedback loop based on principles of the vector control", *Electric machines and power systems*, Vol. 20, No. 5, Sept./Oct. 1992, pp 405-424
4. S. N. Vukosavic, M. R. Stojic: "On-Line Tuning of the Rotor Time Constant for Vector-Controlled Induction Motor in Position Control Applications", IEEE Trans. on Ind. Elect., Vol. 40, No.1, February 1993, pp. 130-138
5. S. N. Vukosavic, M. R. Stojic, "Reduction of Parasitic Spectral Components of Digital Space Vector Modulation by Real-Time Numerical Methods", IEEE Trans. on Power Electronics, February 1995, pp 94-102
6. S. N. Vukosavic, M. R. Stojic, "Suppression of Torsional Oscillations in a High-Performance Speed Servo Drive", IEEE Trans. on Industrial Electronics, Vol. 45, No. 1, February 1998, pp 108-117
7. E. Levi, M. Sokola, S.N. Vukosavic, "A Method for Magnetizing Curve Identification in Rotor Flux Oriented Induction Machines", IEEE Transaction on Energy Conversion, Vol. 15, No. 2, June 2000. pp. 157-162
8. E. Levi, S.N. Vukosavic, "Identification of the Magnetising Curve during Commissioning of a Rotor Flux Oriented Induction Machine", IEE Proceedings - Electr. Power Applications, Vol. 146, No.6, November 1999. pp. 685-693
9. S. N. Vukosavic, A. M. Stankovic, "Sensorless induction motor drive with a single DC-link current sensor and instantaneous active and reactive power feedback", IEEE Transactions on Industrial Electronics, Vol. 48, No. 1, February 2001, pp 195-204

10. Vujicic, V, Vukosavic, S.N, “A simple nonlinear model of the switched reluctance motor”, IEEE Transactions on Energy Conversion, Vol. 15, No. 4, Dec. 2000, pp 395–400
11. Vasic, V.; Vukosavic, S., “Robust MRAS-based algorithm for stator resistance and rotor speed iden- tification”, IEEE Power Engineering Review , Volume 21, Issue 11 , Nov 2001, pp: 39-41
12. Vasic Veran V., Vukosavic Slobodan N., Sensorless MRAS-based induction motor control with parallel speed and stator resistance estimation, European Transactions on Electrical Power, vol. 12, no. 2, pp. 135-139, (2002)
13. E.Levi, M.Jones, S.N.Vukosavic; Even-phase multi-motor vector controlled drive with single inverter supply and series connection of stator windings, *IEE Proc. – Electric Power Applications*, vol. 150, no. 5, 2003, pp. 580-590.
14. V.Vasic, S.N.Vukosavic, E.Levi; A stator resistance estimation scheme for speed sensorless rotor flux oriented induction motor drives, *IEEE Trans. on Energy Conversion*, vol. 18, no. 4, 2003, pp. 476-483.
15. S.N.Vukosavic, E.Levi; A method for transient torque response improvement in optimum efficiency induction motor drives, *IEEE Trans. on Energy Conversion*, vol. 18, no. 4, 2003, pp 484 - 493
16. S.N.Vukosavic, E.Levi; Robust DSP-based efficiency optimisation of a variable speed induction motor drives, *IEEE Trans. on Industrial Electronics, v*ol.50, no.3, 2003. pp. 560-570,
17. E.Levi, M.Jones, S.N.Vukosavic, H.A.Toliyat; Operating principles of a novel multi-phase multi-motor vector controlled drive, *IEEE Trans. on Energy Conversion,* vol. 19, no. 3, 2004, pp. 508-517. (IF = 0.587)
18. E.Levi, M.Jones, S.N.Vukosavic, H.A.Toliyat; A five-phase two-machine vector controlled induction motor drive supplied from a single inverter, *European Power Electronics & Drives Journal*, vol. 14, no. 3, 2004, pp. 38-48.
19. 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. on Power Electr.,* vol. 19, no. 2, 2004, pp. 320-335.
20. S.N.Vukosavic, M.Jones, E.Levi, J.Varga; Rotor flux oriented control of a symmetrical six-phase induction machine, *Electric Power Systems Research,* vol. 75, no. 2-3, 2005, pp. 142-152. 2005.
21. M.Jones, S.N.Vukosavic, E.Levi, A.Iqbal; A six-phase series-connected two-motor drive with decoupled dynamic control, *IEEE Trans. on Industry Applications,* vol. 41, July/August 2005. pp 1056-1066
22. E.Levi, M.Jones, S.N.Vukosavic; A series-connected two-motor six-phase drive with induction and permanent magnet machines, *IEEE Trans. on Energy Conversion,* vol. 21, No. 1, March 2006, pp 121 – 129
23. E.Levi, S.N.Vukosavic, M.Jones; Vector control schemes for series-connected six-phase two-motor drive systems, *IEE Proc. – Electric Power Applications,* vol. 152, no. 2, 2005, pp. 226-238.
24. Djordje M. Stojic and Slobodan N. Vukosavic*,* A New Induction Motor Drive Based on the Flux Vector Acceleration Method, IEEE Transactions on Energy Conversion, vol. 20, no. 1, march 2005 173-180
25. Vladan Vujičić, Slobodan N. Vukosavić, Milenko B. Jovanović: Asymmetrical Switched Reluctance Motor for a Wide Constant Power Range, IEEE Transactions on Energy Conversion, vol. 21, No. 1, March 2006, pp 44-51
26. E. Levi, M.Jones, A.Iqbal, S.N.Vukosavic, H.A.Toliyat; An induction machine / Syn-Rel two motor five-phase series-connected drive, *IEEE Trans. on Energy Conversion,* vol. 22, No. 2, June 2007, pp 281 - 289
27. E.Levi, M.Jones, S.N.Vukosavic, A.Iqbal, H.A.Toliyat; Modelling, control and experimental investigation of a five-phase series-connected two-motor drive with single inverter supply, *IEEE Trans. on Industrial Electronics,* vol. 54, No. 3, 2007, pp. 1504-1516.
28. Darko P. Marčetić, Slobodan N. Vukosavić, Speed - Sensorless AC Drives With the Rotor Constant Parameter Update, *IEEE Trans. on Industrial Electronics,* vol. 54, No. 5, October 2007, pp 2618-2625
29. Z. Grbo, S.N. Vukosavic, Cost optimized switched reluctance motor drive with bipolar currents, Electrical Engineering (Archiv fur Elektrotehnik), vol. 89, (2007) 183-191
30. Stojic, D.; Vukosavic, S.; “Sensorless Induction Motor Drive Based on Flux Acceleration Torque Control”, *IEEE Transactions on Industrial Electronics,* Vol. 54, No.3, 2007, pp 1796 - 1800
31. E. Levi, M. Jones, S.N. Vukosavic, H.A. Toliyat: Steady-State Modeling of Series-Connected Five-Phase and Six-Phase Two-Motor Drives, *IEEE Trans. on Industry Applications,* vol. 44, No. 5, Sept/October 2008. pp 1559-1568
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33. Branko Blanusa, Slobodan N. Vukosavic: Efficency Optimized Control for Closed-cycle Operations of High Performance Induction Motor Drive, Journal of Electrical Engineering, vol. 9, no. 3, 2008, art. 8.3.12, pp. 81-88
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39. MATIC, P., VUKOSAVIC, S. N, “Speed Regulated Continuous DTC Induction Motor Drive in Field Weakening”, *Advances in Electrical and Computer Engineering,* Issue 1, February 2011, pp. 97-102, DOI: 10.4316/AECE.2011.01016, ISSN: 1582-7445, e-ISSN: 1844-7600,

40. Petar Matic, Slobodan N. Vukosavic, “Direct Torque Control of Induction Motor in Field Weakening Without Outer Flux Trajectory Reference”, *International Review of Electrical Engineering,* Vol. 6, No.3, June 2011*,* ISSN: 1827 – 6660, e-ISSN: 1827- 6679,
41. Terzic, M.V. ; Mihic, D.S. ; Vukosavic, S.N., "Stator Design and Air Gap Optimization of High Speed Drag-Cup Induction Motor using FEM", Advances in Electrical and Computer Engineering, (2013), vol. 13 br. 3, str. 93-100,
42. M. Terzić, D. Mihić, S. Vukosavić**,** *Design of High-Speed, Low-Inertia Induction Machines With Drag-Cup Rotor*, IEEE Transactions on Energy Conversion, Vol. 29, No. 1, pp. 169-177, March, 2014. DOl: 10.1109ffEC.2013.2289352,
43. Popov, N.Z. ; Vukosavic, S.N. ; Levi, E., Motor Temperature Monitoring Based on Impedance Estimation at PWM Frequencies, IEEE Transactions on Energy Conversion, Volume: 29, No. 1, DOl: 1 0.1109ffEC.2013.2292566, Publication Year: 2014, Page(s): 215-223
44. Slobodan N. Vukosavic, Ljiljana S. Peric, "High Precision Sensing of DC Bias in AC Grids," IEEE Transactions of Power Delivery, scheduled for publication in 2015, published on-line 25.12.2014, DOI 10.1109/TPWRD.2014.2386257
45. Slobodan N. Vukosavic, Ljiljana S. Peric, Stanimir S. Susic, "A Novel Power Converter Topology for Electrostatic Precipitator," IEEE Transactions of Power Electronics, scheduled for publication in 2015, published on-line 19.02.2015, DOI 10.1109/TPEL.2015.2405471

### ***Other published output***

Publication list includes 88 journal papers, 119 full papers in conference proceedings, and 17 invited conference papers.

### ***The impact***

Science citation index (SCI) obtained from "Scopus/JCR" includes 1263 citations of 75 publications, excluding self-citations, and indicates an h-factor of 22.