

Curriculum Vitae

Kosta Jovanović, Ph.D. El.Eng.

Personal

Name: Kosta M. Jovanović

Born: 17th of July 1986, Cacak, Serbia

Citizenship: Serbian

Industry: Robotics and Mechatronics

Current position: Assistant Professor, ETF Robotics laboratory ([link](#)), Department of Signals & Systems ([link](#)), School of Electrical Engineering ([link](#)), University of Belgrade ([link](#))

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Education

PhD degree
(2010–2016) School of Electrical Engineering, University of Belgrade / DLR Institute of Robotics and Mechatronics, Oberpfaffenhofen, Germany
PhD thesis: Modeling and control of the anthropomorphic robot with antagonistic joints in contact and non-contact tasks
Supervisor: Prof. Veljko Potkonjak; *Committee members:* Prof. Mirjana Popović; Prof. Aleksandar Rodić; Prof. Alin Albu-Schäffer; Prof. Željko Đurović

Masters degree
(2009–2010) School of Electrical Engineering, University of Belgrade
Department: Signals & Systems / *Field:* Control systems & Robotics
GPA: 10.00 (out of 10.00)

Dipl. Ing. degree
(2005–2009) School of Electrical Engineering, University of Belgrade
Department: Signals & Systems / *Field:* Control systems & Mechatronics
GPA: 9.96 (out of 10.00) - award for the best graduated student on department

Experience – Professional engagements

Assistant Professor
9/2016 - present Laboratory for Robotics – ETF Robotics, School of Electrical Engineering, University of Belgrade (courses: Hydraulics & Pneumatics Systems, CNC machines, Robotics & Automation, Theory of Robotic Systems, Sensors in Robotics, Robotics Systems). (www.etf.rs)

Teaching & Research Assistant
3/2010 – 9/2016 Laboratory for Robotics – ETF Robotics, School of Electrical Engineering, University of Belgrade (courses: Hydraulics & Pneumatics Systems, CNC machines, Robotics & Automation, Theory of Robotic Systems, Sensors in Robotics, Robotics Systems). (www.etf.rs)

Guest Researcher
5/2013 – 11/2013 DLR Institute of Robotics and Mechatronics, German Aerospace Center (DLR). Robot Control Department. – DAAD grant for PhD research. Supervisor: Alin Albu-Schäffer. Munich, Germany. (<http://www.dlr.de/rm/>)

Guest Researcher
7/2010 – 8/2010 TUM (Technical University of Munich). Department for Robotics & Embedded Systems, Munich, Germany. (www6.in.tum.de)

Intern 6/2009 – 9/2009	SMS Siemag A.G., Hilchenbach, Germany. Department of Electronic & Automation. (www.sms-siemag.com)
Professional trainings	<p>Saphari NMMI Winter School on Robotics: Variable Stiffness Actuators, Sapienza University of Rome, Rome, Italy. (<i>February 2015</i>)</p> <p>Proposal Writing and International Project Management for Young Researchers (<i>by Iris Löhrmann & Stephan Heilmann, TU Berlin, October 2014</i>)</p> <p>Flatness based control of nonlinear systems (<i>by prof. Dr.-Ing. J. Rudolph, Saarland University, October 2013</i>)</p> <p>Summer School on Soft Robotics, Swiss Federal Institute for Technology ETH Zurich, Switzerland. (<i>June 2012</i>)</p>

Experience – Projects

FS4SMIH (coordinator) 9/2016 - present	Feasibility Study for Serbian Manufacturing Innovation Hub. Funded by H2020 call I4MS.
Robotization of Serbia (coordinator) 10/2014 - present	Robotization of Serbia - educational and science promotion project. Funded by Serbian Center for the Promotion of Science, Erste Bank, and Comtrade.
Anth. Serv. Robot 1/2011 - present	Ambient intelligent service robot of anthropomorphic characteristics. Funded by Serbian Ministry of Education, Science and Tech. Development, no. TR35003.
ECCEROBOT 10/2009 – 2/2012	Embodied Cognition in a Compliantly Engineered Robot – <i>ECCEROBOT</i> . Funded by EU FP7, Challenge 2- Cognitive Systems, Interaction, Robotics - under grant agreement no. 231864 (www.eccerobot.org)
Days of future: Robotics 5/2012 – 10/2012	Science popular manifestation “Days of Future: Robotics” (24th of Sept. – 15th of Oct. 2012), main responsible for robot exhibition and science popular lectures session. In cooperation with Serbian Center for the Promotion of Science. (http://danibuducnosti.rs/)

Research Interests

Robotics	Human-like robotic actuators: modeling and control Simulation tools for robot & machine dynamics, contacts with environment & control
Control systems	Control systems applied to electrical & hydraulics drives

Awards

2016	Best Paper Award – Section: Robotics and Flexible Automation, 3 rd International Conference on Electrical, Electronic and Computing Engineering (IcETRAN 2016)
2016	Youth Heroes: 1 st Price in Category Education and Science. Issuer: Exit Foundation and NIS Gasprom Neft.
2015	Winner of Saphari NMMI Winter School on Robotics: Variable Stiffness Actuators, Sapienza University of Rome, Rome, Italy.
2014	Best Young Researcher Award – Section: Robotics and Flexible Automation, 1 st International Conference on Electrical, Electronic and Computing Engineering (IcETRAN 2014)
2013	SUPERSTE award for the best Serbian young scientist (up to 27 age) in the field

of natural and technical sciences

- 2013** Belgrade award (event of the year 2012 in Belgrade) – Days of Future: Robotics (organization team: Aleksandra Drecun, *Serbian Center for the Promotion of Science*; prof. Veljko Potkonjak, Kosta Jovanovic, *School of Electrical Engineering, University of Belgrade*)
- 2013** DAAD grant for research stay at DLR Institute on Robotics and Mechatronics, Munich, Germany
- 2012** Nikola Tesla Junior Achievement Award for the outstanding achievements of young people in the field of technology in 2011
- 2011** The 1st prize at the 17th International Students Competition in Engineering – ICAMES 2011 – Istanbul; role – team adviser
- 2011** Belgrade University Award for the best student scientific work in the field of technical & technological sciences at Belgrade University in 2010/2011.
- 2009** Award for the best graduated student in 2009 at the Department for Signals & Systems, Faculty of Electrical Engineering, University of Belgrade
- 2009** “Zoran Djindjic Internship Programme of German Business” scholarship for professional education in Germany
- 2008** Prof. Mirko Milić award for the best student in class at the Faculty of Electrical Engineering, University of Belgrade
- 2008** Mihailo Pupin award (Serbian people from the USA) – the best twenty Serbian students
- 2008** Eurobank EFG award “We Invest in European values” – the best hundred Serbian students

Publications

Citations – 84; h-index – 6 (source: Scopus)

Citations – 185; h-index – 7 (source: Google Scholar)

Book chapter:

(1)

1. V. Potkonjak, **K. Jovanovic**, P. Milosavljevic. *Springer Series on Mechanisms and Machine Science – New trends in Medical and Service Robotics, Vol 20*, (2014). Chapter 20: “How to Control Anthropomorphic Robot: Engineering and Cognitive Approach” (ISBN 978-3-319-05431-5, DOI: 10.1007/978-3-319-05431-5)

International Journals:

(7)

1. V. Potkonjak, M. Gardner, V. Callaghan, P. Mattila, C. Guetl, V. Petrović, **K. Jovanovic**, “Virtual Laboratories for Education in Science, Technology, and Engineering: a Review”, *Computers & Education (Elsevier)*, Vol 95, 2016, pp 309-327
2. **K. Jovanovic**, V. Potkonjak, O. Holland, “Dynamic Modelling of an Anthropomorphic Robot in Contact Tasks”, *Advanced Robotics: The International Journal of the Robotics Society of Japan (Taylor & Francis)*, Vol 28(11), 2014, pp 793-806
3. V. Antoska, **K. Jovanovic**, V. Petrovic, N. Bascarevic, M. Stankoviski, “Balance Analysis of the Mobile Anthropomorphic Robot Under Disturbances – ZMP Approach”, *International Journal of Advanced Robotic Systems (InTech)*, Vol 10(paper 206), 2013, pp 1-10
4. S. Wittmeier, C. Alessandro, N. Bascarevic, K. Dalamagkidis, A. Diamond, M. Jantsch, **K. Jovanovic**, R. Knight, H. G. Marques, P. Milosavljevic, B. Svetozarevic, V. Potkonjak, R. Pfeifer, A. Knoll, O. Holland, “Towards Anthropomorphic Robotics”, *Artificial Life, (MIT press)*, Vol 19(1), 2013, pp 171-193
5. V. Potkonjak, **K. Jovanovic**, O. Holland, J. Uhomobhi, “Distance learning and skill acquisition in engineering sciences – present state and prospects”, *Multicultural Education and Technology Journal (Emerald)*, Vol 7(1), 2013, pp 64-88
6. V. Potkonjak, B. Svetozarevic, **K. Jovanovic**, O. Holland, “The puller-follower

control of compliant and noncompliant antagonistic tendon drives in robotic system”, *International Journal of Advanced Robotic Systems (InTech)*, Vol 8, 2012, pp 143-155

7. V. Potkonjak, M. Vukobratovic, **K. Jovanovic**, M. Medenica, “Virtual Mechatronic/Robotic laboratory - A step further in distance learning”, *Computers & Education (Elsevier)*, Vol 55, 2010, pp 465-475

Domestic journals:

(2)

1. **K. Jovanović**, J. Vranić, N. Miljković, "Hill's and Huxley's Muscle Models – Tools for Simulations in Biomechanics", *Serbian Journal of Electrical Engineering*, Vol 12(1) (2015) pp 53-67 (ISSN 1451-4869)
2. B. Svetozarevic, **K. Jovanovic**, “Control of Compliant Anthropomorphic Robot Joint”, *Serbian Journal of Electrical Engineering*, Vol 8(1), (2011) pp 85-93 (ISSN 1451-4869)

International Conferences:

(13)

1. B. Lukic, **K. Jovanovic**, “Minimal Energy Cartesian Impedance Control of Robot with Bidirectional Antagonistic Drives”, Proc. 25th IFTOMM/IEEE International Conference on Robotics in Alpe-Adria-Danube Region – RAAD 2016; June 2016- (Accepted)
2. V. Petrovic, B. Nikolic, **K. Jovanovic**, V. Potkonjak “Development of Virtual Laboratory for Mechatronic Systems”, Proc. 25th IFTOMM/IEEE International Conference on Robotics in Alpe-Adria-Danube Region – RAAD 2016; June 2016- (Accepted)
3. V. Potkonjak, V. Petrovic, **K. Jovanovic**, D. Kostic, “Human-Robot Analogy – How Physiology Shapes Human and Robot Motion”, Proc. European Conference on Artificial Life (ECAL 2013, MIT Press), Taormina, Italy, September 2013, pp. 136-143.
4. V. Potkonjak, **K. Jovanovic**, V. Petrovic, O. Holland, J. Uhomoihi, “Virtual Ambient for E-Learning in Engineering Sciences”, Proc. Conference of the International Journal of Arts and Sciences, Valletta, Malta, March 2013, Vol. 6(1), pp. 7-14.
5. V. Potkonjak, N. Bascarevic, P. Milosavljevic, **K. Jovanovic**, O. Holland, „Experience-Based Fuzzy Control of an Anthropomorphic Robot“, Proc. International Joint Conference on Computational Intelligence (CFP IJCCI 2012), Barcelona, Spain, October 2012., pp 389-394
6. N.Bascarevic, **K. Jovanovic**, P. Milosavljevic, V. Potkonjak, O. Holland, „Tip-over Stability Examination of a Compliant Anthropomorphic Mobile Robot“, Proc. 2012 IEEE International Conference on Control Applications (IEEE CCA 2012), Dubrovnik, Croatia, October 2012., pp 1584-1589
7. P. Milosavljevic, N.Bascarevic, **K. Jovanovic**, G. Kvascev, “Neural networks in feedforward control of a robot arm driven by antagonistically coupled drives”, *The 11th Symposium on Neural Networks Applications in Electrical Engineering (NEUREL 2012)*, Belgrade, Serbia, September, 2012., pp 77-80
8. P. Milosavljevic, **K. Jovanovic**, N.Bascarevic, V. Potkonjak, O. Holland, „Heuristic Machine-Learning Approach to the Control of an Anthropomorphic Robot Arm“, Proc. 10th IFAC Symposium on Robot Control (SYROCO 2012), Dubrovnik, Croatia, September 2012., pp 301-306
9. V. Potkonjak, **K. Jovanovic**, P. Milosavljevic, N. Bascarevic, O. Holland, “The Puller-Follower Control Concept For The Multi-Joint Robot With Antagonistically Coupled Compliant Drives”, *The 2nd IASTED International Conference on Robotics (Robo 2011)*, Pittsburgh, USA, November 2011. pp 375-381
10. V. Potkonjak, **K. Jovanovic**, B. Svetozarevic, O. Holland, D. Mikicic, “Modeling and Control of a Compliantly Engineered Anthropomorphic Robot in Contact Tasks”, *The 35th ASME Mechanisms and Robotics Conference*, Washington, DC, USA, August 2011. pp 23-32(presenting author)
11. V. Potkonjak, B. Svetozarevic, **K. Jovanovic**, O. Holland, “Anthropomorphic Robot with Passive Compliance – Contact Dynamics and Control”, *The 19th Mediterranean Conference on Control and Automation*, Corfu, Greece, Jun 2011. pp 1059 – 1064
12. V. Potkonjak, B. Svetozarevic, **K. Jovanovic**, O. Holland, “Biologically-inspired control of a compliant anthropomorphic robot”, *The 15th IASTED International Conference on Robotics and Applications*, Cambridge, Massachusetts, USA, November 2010. pp 182-189 (presenting author)
13. V. Potkonjak, B. Svetozarevic, **K. Jovanovic**, O. Holland, “Control of Compliant Anthropomorphic Robot Joint”, *International Conference of Numerical Analysis and Applied Mathematics*, Rhodes, September 2010. pp 1271-1274

Domestic conferences:

1. **K. Jovanovic**, B. Lukic, V. Potkonjak, “Enhanced Puller-Follower Approach for Stiffness Control of Antagonistic Drives”, *The 3rd IcETAN Conference*, Zlatibor,

(14)

- Serbia, June, 2016. pp RO1.2- 1-6.
2. B. Lukic, **K. Jovanovic**, A. Rakic, "Realization and Comparative Analysis of Coupled and Decoupled Control Methods for Bidirectional Antagonistic Drives: QBmove Maker Pro", *The 3rd IcETRAN Conference*, Zlatibor, Serbia, June, 2016. pp RO1.1- 1-6.
 3. **K. Jovanovic**, P. Milosavljevic, V. Potkonjak, "Control Design for Pick-and-Place Task Using Robot with Intrinsic Compliance - QB Robot", *The 2nd IcETRAN Conference*, Srebrno jezero, Serbia, June, 2015. pp RO1.1- 1-6.
 4. B. Lukic, **K. Jovanovic**, "Influence of Mechanical Characteristics of a Compliant Robot on Cartesian Impedance Control Design", *The 2nd IcETRAN Conference*, Srebrno jezero, Serbia, June, 2015. pp RO2.5- 1-6.
 5. D. Zivkovic, A. Bukvic, V. Obradovic, **K. Jovanovic**, "Implementation of Extended Kalman Filter in Localization of Mobile Robots", *The 2nd IcETRAN Conference*, Srebrno jezero, Serbia, June, 2015. pp RO1.3- 1-6.
 6. **K. Jovanovic**, J. Vranic, "Muscle Models for Accurate Simulation of Human Movements", *The 1st IcETRAN Conference*, Vrnjacka Banja, Serbia, June, 2014. pp RO2.4- 1-5.
 7. Z. Gordic, **K. Jovanovic**, "Modeling and Control of Car Handling Box System", *The 1st IcETRAN Conference*, Vrnjacka Banja, Serbia, June, 2014. pp RO3.4- 1-6.
 8. V. Petrovic, **K. Jovanovic**, V. Potkonjak, "ZMP approach to the critical design of a mobile platform for the semi-anthropomorphic robot", *The 57th ETRAN Conference*, Zlatibor, Serbia, June, 2013. pp RO1.1- 1-6
 9. V. Potkonjak, **K. Jovanovic**, "Step toward distance learning in engineering disciplines – Virtual laboratory for robotics and mechatronics", *The 56th ETRAN Conference*, Zlatibor, Serbia, June, 2012. pp RO1.1- 1-4
 10. N. Bascarevic, **K. Jovanovic**, V. Potkonjak, "A tip-over stability analysis of an anthropomorphic wheeled robot based on zmp", *The 56th ETRAN Conference*, Zlatibor, Serbia, June, 2012. pp RO2.9 - 1-4
 11. **K. Jovanovic**, N. Bascarevic, "Modeling Contact Dynamics of the Anthropomorphic Robot – ECCEROBOT", *The 55th ETRAN Conference*, Teslic, Bosnia and Herzegovina, June, 2011. pp RO1.8- 1-4
 12. P. Milosavljevic, **K. Jovanovic**, V. Potkonjak, "The Puller-Follower Control Concept in the Multi-Jointed Anthropomorphic Robot Body", *The 55th ETRAN Conference*, Teslic, Bosnia and Herzegovina, June, 2011. pp RO1.7- 1-4
 13. **K. Jovanovic**, B. Svetozarevic, "Humanoid Robot Model with Antagonistic Drives", *The 54th ETRAN Conference*, Donji Milanovac, Serbia, June, 2010. pp RO1.3 - 1-4
 14. B. Svetozarevic, **K. Jovanovic**, "Control of Compliant Anthropomorphic Robot Joint", *The 54th ETRAN Conference*, Donji Milanovac, Serbia, June, 2010. pp RO1.4 - 1-4

Reviewer activities

- Books:** Roboti, Serbian Center for the Promotion of Science, September 2012.
- Magazines:** Elementi (<http://www.cpn.rs/elementi/>), quarterly published by Serbian Center for the Promotion of Science, since July 2015, ISSN 2406-3002
- Journals:** IEEE Transactions on Control Systems Technology, ISSN 1063-6536
International Journal of Humanoid Robotics, World Scientific, ISSN: 0219-8436
International Journal of Intelligent & Robotics Systems, Springer-Verlag Dordrecht, ISSN: 0921-0296
Robotica, Cambridge University Press, ISSN: 1469-8668
Computer Application In Engineering Education, John Wiley and Sons, ISSN: 1061-3773
- Conferences:** Mediterranean conference on control and automation (MED) – IEEE CSS
World Congress of the International Federation of Automatic Control - IFAC
IFTToMM/IEEE 25th International Conference on Robotics in Alpe-Adria-Danube Region (RAAD 2016)
- Other:** Member of National Organizing Committee – IFTToMM/IEEE 25th International Conference on Robotics in Alpe-Adria-Danube Region (RAAD 2016), (<http://raad2016.org/>)

Activities

10/2011 - present	Zoran Djindjic internship programme of German business scholarship holders - alumni club; Belgrade alumni club coordinator (http://www.stipendienprogramm.org/)
10/2009 - present	Member of ETF Robotics research group (http://robot.etf.rs)
2/2014 - present	Member of DAAD Belgrade Alumni club
11/2007 - present	Member of MENSA – Serbia & Montenegro
12/2007 – 10/2010	EESTEC – Electrical Engineering Students' European Association http://eestec.etf.rs/

Other skills

Professional memberships:	IEEE Robotics & Automation Society, DAAD alumni club
Languages:	English (advanced) German (basic)
Computer skills:	MS Office / Internet Tools - Matlab & Simulink, C/C++, LogiCAD, Step7
Personality:	well organized, responsible, ambitious, communicative, team player, hardworking.