

## CURRICULUM VITAE

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### Personal Details:

Name: Djordje  
Surname: Urukalo  
Date of birth: January 16, 1984.  
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### Education: 2009-2014

PhD in Mechatronics (grade: The Right Honourable).  
Student of the Versailles Saint-Quentin-en-Yvelines University (in the original: Université de Versailles Saint-Quentin-en-Yvelines, UVSQ) in Versailles, France. Director of the thesis: Prof. Pierre Blazevic. PhD research topic: Mechanical, electrical and control design of joint actuator for an autonomous human-scale electrically-powered humanoid robot (in the original: Conception mécanique, électrique et contrôle des actionneurs pour les articulations locomotrices d'un robot humanoïde autonome de taille humaine à énergie électrique).  
Field: computer engineering, automation and signal processing.

### 2002-2008

MSc Mechatronics (average grade is 9.17).  
Student of the Faculty of Technical Sciences (in the original: Fakultet tehničkih nauka, FTN) in Novi Sad, Serbia.  
Subcourse: Mechatronics, Robotics and Automation (graduate 2008).

### 1998-2002

Student of the Secondary vocational school of Electrical Engineering (in the original: Srednja elektrotehnička škola "Mihajlo Pupin") in Novi Sad.  
Course: Electrician for radio and video technique (graduate 2002).  
Course: Electrician (graduate 2001).

**Skills:** *Softwares:* LabView, ADAMS, COMSOL Multiphysics (AC/DC Module, Heat Transfer Module), MATLAB (Simulink, Curve fitting, Global optimization, Image processing, Optimization, System identification), C (for the computer's systems of general and special purpose with microcontrollers: Atmel AT89S52, Intel 8051, PIC18F6627), C#, Unity, Motive, Protel, AutoCAD, SolidWorks, Mechanical Desktop, Catia, Ansys, Word, Excel, PowerPoint, Scientific Work Place.

*Other skills:* programming of PLCs, programming of Festo SCADA systems; estimation and identification of immeasurable physical quantities, control and measurements of physical quantities in complex systems in real time; observers design and control; HTC Vive, TRIO, XBEE, PPP GPS, Arduino, Sabertooth, Maxon servo amplifiers.

**Languages:** English (fluent), French (elementary level), Serbian (mother tongue).

### Awards and recognitions during the study:

Ministry of Education, Science and Technological Development - scholarship for young talents, Faculty of Engineering - Diploma for outstanding achievement, Diploma of success.

**Work experience:**

**December 2<sup>nd</sup>, 2013 to date**

Institute Mihajlo Pupin

Research Associate

**September 1<sup>st</sup>, 2012. – January 31<sup>st</sup>, 2013.**

Lemic Group d.o.o.,

The designer in the project office, the building site manager. Materials supply, design and embedment monitoring of ALU and PVC joinery and facade. Making bids, invoicing, issuing work orders, orders for installation. The building site guidance, coordination of contractors and subcontractors, the works synchronizations with other contractors, monitoring and supply of necessary materials and tools, building log records. Making the necessary documentation and reports.

**Research interest:**

1. **Primary:** Robotics, Mechatronics, Dynamic systems, System estimation and identification, Modeling and Simulation, Mechanical design
2. **Particular:** Humanoids, Instrumentation & Measurements, Real-time applications, System integration, Sensor data acquisition and data fusion

**National projects:**

1. The Ministry of Science, Technological Development and Innovation, Republic of Serbia within the framework of the project under Contract no. 451-03-47/2023-01/200034 from February 3, 2023.
2. Mechanical impedance estimation and planning for the next generation collaborative robots, The Science Fund of the Republic of Serbia under the number 6062528, 2020-2022.
3. Research and development of environmentally intelligent service robots anthropomorphic characteristics, the Serbian Ministry of Education Science and technological development under the grant TR 35003, 2011-2019.
4. Development of remote controlled mobile robotic solar electric generator to improvement of agricultural production, the Innovation project under the number 451-03-2802-16 / 55 2014-2015.

**International scientific collaboration and mobility:**

1. Sensor placement determination for wearable devices, ONEFOLD, Science Fund of the Republic of Serbia, Diaspora, 6472787, 2020-2022.
2. Invited professor at the ISTY-University of Versailles school of engineering. He carried out teaching and research activities at the ISTY and within Endicap Laboratory (UMR Inserm U1179), March 1<sup>st</sup>, 2018-July 31<sup>st</sup>, 2018.
3. Research Group Linkage Program, Alexander von Humboldt Foundation, "Building attributes of artificial emotional intelligence aimed to make robots feel and sociable as humans (Emotionally Intelligent Robots - *EIRobots*)", 2015-2017.
4. Project "Romeo", Aldebaran Robotics, 2009-2011.
5. International student competition in robotics EUROBOT, 2004-2006.

**Reviewing scientific papers:**

1. Journal: IEEE Transactions on Mechatronics
2. Conferences: Case, IcEtran, RAAD, ICTC

**Publications:**

1. Željko V. Despotović, Djordje Urukalo, Milan R. Lečić, Aleksandar Čosić, "Mathematical modeling of resonant linear vibratory conveyor with electromagnetic excitation:

- simulations and experimental results." *Applied Mathematical Modelling* (2017), Vol. 41, pp. 1-24, DOI: 10.1016/j.apm.2016.09.010.  
Link: <http://www.sciencedirect.com/science/article/pii/S0307904X16304802>
2. Aleksandar D. Rodic, Milos D. Jovanovic, Milica Vujovic, Djordje Urukalo, "Application-Driven Cloud-Based Control of Smart Multi-robot Store Scenario", *Advances in Robot Design and Intelligent Control*, Volume 540 of the series *Advances in Intelligent Systems and Computing*, pp. 347-357, 2016, DOI: 10.1007/978-3-319-49058-8\_38.
  3. Aleksandar Rodić, Djordje Urukalo, Milica Vujović, Sofija Spasojević, Marija Tomić, Karsten Berns, Salah Al-Darraj, Zuhair Zafar, "Embodiment of Human Personality with EI-Robots by Mapping Behaviour Traits from Live-Model", *Advances in Robot Design and Intelligent Control*, Volume 540 of the series *Advances in Intelligent Systems and Computing*, pp. 438-448, 2016, DOI: 10.1007/978-3-319-49058-8\_48.
  4. Aleksandar Rodić, Miloš D Jovanović, Milica Vujović, Đorđe Urukalo, "Modeling and Simulation of the Cloud Robots in The Smart Multi-Tasking Scenarios", *Proceedings of 3rd International Conference on Electrical, Electronic and Computing Engineering IcETRAN 2016*, Zlatibor, Serbia, June 13 – 16, 2016, ISBN: 978-86-7466-618-0.
  5. Rodić, B. Miloradović, S. Popić, Đ. Urukalo, "On developing lightweight robot-arm of anthropomorphic characteristics", *New Trends in Medical and Service Robotis, Mechanisms and Machine Science*, Vol. 38, pp. 33-46, Springer International Publishing Switzerland, DOI: 10.1007/978-3-319-23832-6\_4, 2015.  
Link: [http://link.springer.com/chapter/10.1007/978-3-319-23832-6\\_4](http://link.springer.com/chapter/10.1007/978-3-319-23832-6_4)
  6. A. Rodić, I. Stevanović, M. Jovanović, Đ. Urukalo, "On Building Remotely Operated Underwater Robot-Explorer with Bi-manual Poly-articular System", *Advances in Robot Design and Intelligent Control*, Vol. 371, pp. 481-490, DOI: 10.1007/978-3-319-21290-6\_48, 2015.  
Link: [http://link.springer.com/chapter/10.1007/978-3-319-21290-6\\_48](http://link.springer.com/chapter/10.1007/978-3-319-21290-6_48)
  7. Đorđe Urukalo, Miloš D. Jovanović, Aleksandar Rodić, "Human Artificial Muscle Realisation Using Twisted-String Actuator", *2nd International Conference on Electrical, Electronic and Computing Engineering -IcETRAN2015*, pp. ROI3.3.1-4, ISBN: 978-86-80509-71-6, 8-11.06.2015.
  8. Aleksandar Rodić, Ilija Stevanović, Miloš D Jovanović, Đorđe Urukalo, "Design of remotely operated river underwater robot with bi-manual poly-articular system", *2nd International Conference on Electrical, Electronic and Computing Engineering - IcETRAN2015*, pp. ROI4.2.1-4, ISBN: 978-86-80509-71-6, 8-11.06.2015.
  9. M. Tomić, A. Rodić and Đ. Urukalo, "Solving Inverse Kinematics of Hyper-Redundant Multi-Links Flexible Robot - modeling and simulation", *2nd International Conference on Electrical, Electronic and Computing Engineering-IcETRAN2015*, pp. ROI2.3.1-6, ISBN: 978-86-80509-71-6, 8-11. 06. 2015.
  10. Đorđe Urukalo, Pierre Blazevic, „In situ non-invasive identification of thermal resistances for small DC motor”, *IEEE/ASME International Conference on Advanced Intelligent Mechatronics, AIM 2011*, Budimpešta, Mađarska, pp. 582-587, DOI: 10.1109/AIM.2011.6027029, 4-6.07.2011.  
Link: <http://ieeexplore.ieee.org/document/6027029/>
  11. Đorđe Urukalo, Pierre Blazevic, „In situ non-invasive identification of thermal resistances for actuator in a humanoid robot”, *French German Workshop on Humanoids and Legged Robots, HLR 2011*, Pariz, Francuska, 14-15.02.2011.
  12. Urukalo D., Kevac L., Zafar Z., Al-Darraj S., Rodić A., Berns K. (2018), "Ability of Humanoid Robot to Perform Emotional Body Gestures". In: Ferraresi C., Quaglia G. (eds)

- Advances in Service and Industrial Robotics. RAAD 2017. Mechanisms and Machine Science, vol 49. Springer, Cham.
13. Zafar Z., Salazar D.A., Al-Darraj S., Urukalo D., Berns K., Rodić A. (2018), "Human Robot Interaction Using Dynamic Hand Gestures". In: Ferraresi C., Quaglia G. (eds) Advances in Service and Industrial Robotics. RAAD 2017. Mechanisms and Machine Science, vol 49. Springer, Cham.
  14. Al-Darraj S., Zafar Z., Berns K., Urukalo D., Rodić A. (2018), "Interactive Communication Between Human and Robot Using Nonverbal Cues". In: Ferraresi C., Quaglia G. (eds) Advances in Service and Industrial Robotics. RAAD 2017. Mechanisms and Machine Science, vol 49. Springer, Cham
  15. Đorđe Urukalo, Željko V. Despotović, Miloš Jovanović, "The Chronological System of Solar Tracking Implemented on Mobile Solar Generator-IMP MSEG", Peta međunarodna konferencija o obnovljivim izvorima električne energije, 5. MKOIEE, Belgrade, 2017.
  16. Ž.V. Despotović, Đ. Urukalo and A.I. Ribić, "Hardware Implementation of Measuring System of Resonant Electromagnetic Vibratory Conveyor," INFOTEH-JAHORINA Vol. 16, March 2017
  17. Ž.V. Despotović, Đ. Urukalo and A.I. Ribić, "Hardware and Software Implementations of Measuring System for Resonant Electromagnetic Vibratory Conveyor", International Journal of Electrical Engineering and Computing (IJEEC), Vol. 1, No. 1 (2017), DOI: 10.7251/IJEEC1701021D.
  18. Djordje Urukalo, Milos D Jovanovic, Aleksandar Rodic, "Modeling, Development and Control of Linear Twisted-String Actuator", Journal of Applied Sciences, Acta Polytechnica Hungarica, DOI: 10.12700/APH.14.4.2017.4.11
  19. Djordje Urukalo, "Performance and perception of emotional states by a humanoid robot", EIROBOTS2017, Belgrade, December 11-13, 2017.
  20. Djordje Urukalo, Pierre Blazevic, Sébastien Charles, Jean-Paul Carta, "The Teach'Wear-Healthcare Wearable Device", Proceedings of the 27<sup>th</sup> IEEE International Symposium on Robot and Human Interactive Communication, pp. 638-643, Nanjing, China, August 27-31, 2018.
  21. Djordje Urukalo and Željko V. Despotović, "Experimental verification of electrical power consumption of resonant electromagnetic vibratory feeder," *2020 19th International Symposium INFOTEH-JAHORINA (INFOTEH)*, East Sarajevo, Bosnia and Herzegovina, 2020, pp. 1-5, doi: 10.1109/INFOTEH48170.2020.9066331.
  22. Željko V. Despotović and Djordje Urukalo, "SCR Power Converter for Driving of Electromagnetic Vibratory Silo Extractor," *2020 19th International Symposium INFOTEH-JAHORINA (INFOTEH)*, East Sarajevo, Bosnia and Herzegovina, 2020, pp. 1-6, doi: 10.1109/INFOTEH48170.2020.9066332.
  23. Marija Radmilović, Djordje Urukalo, Miloš Petrović, Filip Bečanović and Kosta Jovanović, "Influence of muscle co-contraction indicators for different task conditions", 8th International Conference on Electrical, Electronic and Computing Engineering IcETRAN 2021, Ethno village Stanišići, Republic of Srpska, September 8-10, 2021. ISBN: 978-86-7466-894-8.
  24. Alexander Castilla, Alain Berthoz, Djordje Urukalo, Mohamed Zaoui, Anaick Perrochon, Téó Kronovsek, "Age and sex impact on visuospatial working memory (VSWM), mental rotation, and cognitive strategies during navigation", Neuroscience Research, 2022, ISSN 0168-0102, doi: 10.1016/j.neures.2022.07.007.
  25. Frering, P., Urukalo, D., Blazevic, P., and Carta, J.-P., "The Teach'Wear - Healthcare Wearable Device", in 44th COSPAR Scientific Assembly. Held 16-24 July, 2022, vol. 44, p. 2854.

26. Marija Radmilović, Djordje Urukalo, Milica M. Janković, Suzana Dedijer Dujović, Tijana J. Dimkić Tomić, Maja Trumić, Kosta Jovanović, "Elbow joint stiffness functional scales based on Hill's muscle model and genetic optimization", *Sensors* 2023, 23, 1709. <https://doi.org/10.3390/s23031709>.