

Marko Šimic, PhD

Personal data:

Born 21st of May in Kranj, Slovenia. He speaks English and Croatian (Serbian) fluently.

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Education:

2008 Diploma thesis, University of Ljubljana, Faculty of Mechanical Engineering

2013 **Doctoral thesis, University of Ljubljana, Faculty of Mechanical Engineering**

Academic and Scientific/Research Title:

Assistant professor, Doctor (Ph. D.)

Career and Professional Development/Employment:

2008 Dec. – 2009	<i>Worked at University of Ljubljana, Faculty of Mechanical Engineering as assistant</i>
Oct. 2009 – Mar. 2013	<i>Worked at University of Ljubljana, Faculty of Mechanical Engineering as young researcher</i>
Mar. 2013 – Oct. 2013	<i>Worked at University of Ljubljana, Faculty of Mechanical Engineering as PhD researcher</i>
Okt. 2013 – Jul. 2015	<i>Worked at University of Ljubljana, Faculty of Mechanical Engineering as PhD researcher – post doctoral project: Promoting of Young Researchers at the beginning of their career.</i>
Jul. 2015 -	<i>Worked at University of Ljubljana, Faculty of Mechanical Engineering as PhD researcher</i>
2016 -	<i>Worked at University of Ljubljana, Faculty of Mechanical Engineering as assistant</i>

Elections

2009: *Assistant, first election, Manufacturing Technologies and Systems*

2013: *Assistant, second election, Manufacturing Technologies and Systems*

2016: *Assistant, third election, Manufacturing Technologies and Systems*

2017: *Assistant professor, first election, Manufacturing Technologies and Systems*

Research work:

- Fundamental and applied research in the field of hydraulic and pneumatic components and systems, open-loop and closed-loop control, adaptive control.
- Digital hydraulics, digital hydraulic valves, pneumatic and hydraulic piezo valves.
- Fundamental and applied research in the field of automation, handling and assembly.
- Fundamental and applied research in the field of Manufacturing technologies, mechatronics, Smart Factories, digital twins and digital agents designing, development of smart decision algorithms, discrete simulation of manufacturing systems and processes.
- Piezo actuators, piezo micro positioners and piezo control electronics.

He published 9 scientific articles in SCI journals, 10 scientific contributions at conferences and a number of other professional contributions.

Publications:

https://bib.cobiss.net/bibliographies/si/webBiblio/bib201_20200409_182528_31322.html

Pedagogic work:

Assistant professor and assistant at:

1st Cycle Professional Study Programme: Hydraulics and pneumatics (2053)

1st Cycle Academic Study Programme: Hydraulic and pneumatic systems (3083)

2nd Cycle Master's Study Programme: Productronic and forming systems (6220)

2nd Cycle Master's Study Programme: Productronic and forming systems (6220) – ERASMUS+

Mentoring:

<i>1st Cycle Academic Study Programme</i>	4
<i>1st Cycle Professional Study Programme</i>	6
<i>2nd Cycle Master's Study Programme</i>	5
<i>3rd Cycle Doctoral Study Programme</i>	1 (YR, Denis Jankovič)

YR – young researcher

Co-mentoring:

<i>1st Cycle Academic Study Programme</i>	8
<i>1st Cycle Professional Study Programme</i>	5
<i>2nd Cycle Master's Study Programme</i>	6
<i>3rd Cycle Doctoral Study Programme</i>	1 (Luka Sevšek)

Project experience:

Dr. Marko Šimic works and cooperate on several domestic and international research projects in the field of basic, applied and industrial researches in Slovenia, Austria, Germany and Serbia. He is active in the fields of development of advanced hydraulic and pneumatic valves, piezo techniques and components within the scope of project tasks for industry. He also works in the areas of automation, mechatronics, smart devices and systems within the Factories of the future. He cooperates and participated in designing and developing new production technologies, processes, devices, machines and hydraulic components. For many years, he has been developing and implementing hydraulic controls for hydraulic applications in industry and hydraulic controls for demanding advanced applications where both basic and application researches are required (development and simulation of the high-dynamic supporting system for Hydria Rotomatika).

After a successfully completing doctoral thesis, Dr. Marko Šimic worked on the project in the framework of the Promoting of Young Researchers at the beginning of their career, which was co-financing. The project was successfully concluded.

Title of the research project: Research and development of new high-dynamic hydraulic positioning systems

Co-financier, amount of co-financing and duration: Ministry of Education, Science and Sport, 85 000.00 EUR, 21 months.

Was also participating on other projects as a member of research group of University of Ljubljana, Faculty of mechanical engineering:

- Energy saving and ecologically friendly pneumatic valves, 1997 – 1999, National R&D project, financed by the Ministry of science and technology,
- Development of electronic controlled hydraulic lift and four wheels braking for agricultural tractors for the Trgoprevoz company, 1998 – 2000, R&D project, financed by the Ministry of science and technology, The first application of the EHR-hydraulic system on an agricultural tractor in Slovenia,

- SPS GOSTOP – Smart specialization: Development of virtual factory platform (2016 – 2020)
- EUREKA projects,
- TEMPUS project,
- INTERREG CROSS INNO project with Austria,
- Industrial projects: Yaskawa Slovenia, Plastika Skaza, Danfoss Compressors, Gorenje d.d., FESTO Ljubljana d.o.o., Hidria Rotomatika (USA Patent), Armat d.o.o., RLS d.o.o., Polycom d.o.o.

Other activities in work in the international and national commissions and bodies:

- Dr. Marko Šimic is a member of the scientific committee at international conference IN-TECH, which covers the area of innovative technologies.
- Dr. Marko Šimic is member of Programme Committee at conference ASM – Automation of handling and assembly.
- Dr. Marko Šimic is a member of the scientific committee at international conference MIT - Management and Innovative Technologies, which covers the area of innovative alternative technologies.

Prizes, awards, certificates:

Award for high-quality publications at University of Ljubljana, Faculty of Mechanical Engineering. Original scientific paper published in Journal Energy Conversion and Management with the high impact factor IF: 4.38. Title of the paper: Reduction of the flow forces in a small hydraulic seat valve as alternative approach to improve the valve characteristics.