

Curriculum Vitae - Marija Tomic, M.Sc.E.E

Personal

Name: Marija Tomić
Born: 14th of July 1987, Užice, Serbia
Citizenship: Serbia
Current position: R&D Engineer, Mihailo Pupin Institute, Belgrade
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Education

- PhD degree**
(2012 – present) Bilateral PhD program - Faculty of Electrical Engineering, University of Belgrade and Ecole Centrale de Nantes, France
PhD thesis: Dual-arm manipulation inspired by human skills
- Masters degree**
(2010 – 2011) Average mark: 10.0 (of 10.0)
Thesis (In collaboration with the Mihailo Pupin Institute, Robotics Lab, Belgrade): Modeling and control of coordinated two arm manipulation of service robot anthropomorphic structure.
- Dipl. Ing. degree**
(2006 – 2010) Average mark 9.02 (of 10.0)
Thesis (In collaboration with the Mihailo Pupin Institute, Robotics Lab, Belgrade): Modeling, control and simulation mobile robotics' plat with robotics' arm-LYNXMOTION AL5A'.

Experience/Career/Projects

- 2012 - present** Junior R&D Engineer and Ph.D. student, Mihailo Pupin Institute, Robotics Lab, Belgrade
Project: Ambient Intelligent Service Robots of Antropomorphic Characteristics (2011-2015)
- 2012 - present** Ph.D. student, IRCCyN, Team Robotics, Ecole Centrale de Nantes, Nantes, France
- Sep 2014-Feb 2015** Practical work with Vicon Motion Capture System for recording human motion and carateristics of human movements
- Sep 2014-Feb 2015** Practical work with humanoid robot Romeo – simulator and real system
- July 2014** Participant on Workshop and Summer School MESROB 2014, EPFL, Lausanne, Swiss
- July 2013** Participant on Workshop MESROB 2013, IMP, Belgrade, Serbia

July 2012	Participant on Summer School MESROB 2012, Technical University of Cluj-Napoca, Romania
Mar 2010 – Dec 2011	Student Research Assistant, Mihailo Pupin Institute, Robotics Lab, Belgrade Project: Humanoid Robotic Systems – Theory and Applications
Jul 2010 - Oct 2010	International practice, Manipal Institute of Technology, India Project: Hybrid Systems

Research Interests

Robotics	Humanoid Robots, Bio-inspired Robotics, Modeling and control robot, Inverse kinematics algorithms, Imitation human motion, Motion Capture Systems, Bipedal walking
Control systems	Control hybrid, mechanical and electrical systems

Awards

2014	Ministry of Education and Sports Scholarship
2013	Ministry of Education and Sports Scholarship
2012	French Government Scholarship for bilateral doctoral studies in France
2011	The 1 st prize at the 17 th International Students Competition in Engineering – ICAMES 2011 – Istanbul
1999-2006	National, regional and local competitions Several awards, third place on republic competition (physics), several first and second places

Student's projects

Modeling and control of manipulators	Modeling and control techniques of serial manipulators - robot architectures, geometric modeling, kinematic modeling, dynamic modeling and its applications, classical PID controller and computed torque controller
Advanced Modeling of Robots	Advanced modeling techniques -geometric, kinematic and dynamic of robots (tree structure robots, parallel robots, and hybrid robots) composed of rigid links
Humanoid Robots	Control of humanoids for locomotion and manipulation-bipedal locomotion, whole motion control and redundancy
From human motion to humanoid control	Software simulation of a captured human motion for control a humanoid robot, mechanics of the human body considered as open kinematic chains of rigid bodies
Artificial intelligence	Advanced issues of artificial intelligence from the perspective of a computerized autonomous agent - genetic algorithms and neural networks processing.
Nonlinear control systems	Various nonlinear methods in controlling two tank system, different homework about nonlinear control methods, applied on model of series DC motor, cart-pole model and boost DC/DC converter

Hybrid systems	Hybrid systems methods in controlling tree tank system, two projects, using methods Mixed Logical Dynamical (MLD) Systems and Linear Quadratic Regulation, software Checkmate and Stateflow toolbox
Industrial process control	Thermo regulation of drier using PLC and projecting SCADA system, Control of AC motor using PLC, Control of two tank system using MoatLab Real Time toolbox
Real time control	Thermo regulation of drier using microcontroller

Publications

International conferences:

V. Potkonjak, **M. Tomic**, A. Rodic, V. Antoska, “ Human and Humanoid Motion - Distinguish Between Safe and Risky Mode of Locomotion“, *10th International IFAC Symposium on Robot Control*, Dubrovnik, Croatia, September, 2012.

M. Tomic, Ch. Chevallereau, “Conversion of Captured Human Motion to the Humanoid ROMEO for Human Imitation ”, *The 1st IcETRAN Conference*, Vrnjačka Banja, Serbia, Jun, 2014.

M. Tomic, Ch. Vassallo, Ch. Chevallereau, A. Rodic, V. Potkonjak, “Arms motion of a humanoid inspired by human motion”, *MESROB 2014*, EPFL Lausanne, Swiss, July, 2014.

M. Tomic, D. Katić, “Arms Dual-Arm Robot Tracking of the Moving Target Using the Algorithm of Inverse Kinematics ”, *The 1st IcETRAN Conference*, Vrnjačka Banja, Serbia, Jun, 2014.

Domestic conferences:

M. Tomic, Ch. Chevallereau, “The Circular motion of the Dual-Arms Robotics Manipulation Hands Inspired by Human Skill”, *The 57th ETRAN Conference*, Zlatibor, Serbia, Jun, 2013.

B. Miloradović, **M. Tomić**, S. Popić, “Primena veštačkih neuronskih mreža za rešavanje problema inverzne kinematike manipulatora sa pet stepeni slobode”, *The 56th ETRAN Conference*, Zlatibor, Serbia, June 2012.

M. Tomić, B. Miloradović, M. Janković, “The algorithm for trajectory tracking using a combination of Neural Network and Genetic Algorithm”, *11th Symposium on Neural Network Applications in Electrical Engineering*, Belgrade, Serbia, June 2012.

M. Tomić, M. Janković, “Solving inverse kinematics problem of ROBED03 manipulator using genetic algorithms”, *The 56th ETRAN Conference*, Zlatibor, Serbia, June 2012.

N. Bascarevic, **M. Tomic**, P. Milosavljevic, “Symbiosis of programming languages Matlab and C++ for efficient robot simulation”, *The 55th ETRAN Conference*, Banja Vrucica, Bosnia, June, 2011.

M. Tomic, V. Potkonjak, “Čovečiji i čovekoliki hod razlike između safe i risky moda”, *The 54th ETRAN Conference*, Donji Milanovac, Serbia, June, 2010.

Activities

Member of the ETF Robotics research group (<http://robot.etf.rs>)

Other skills

Languages:

- English
- Russian

- France (intermediant)

Experiences with equipments

Vicon Motion Capture System - ARTrack and Dtrack, robot ROMEO and simulator for robot ROMEO

Computer skills:

MatLab suite

Maple

SYMORO

C and C++

RS Logix suite for programming PLC and SCADA systems

Solidworks

Windows, Office suite, Linux

Personality:

creative, responsible, ambitious, skillfully, team player, communicative, ready to learn and specialize, hard working and systematic person

Driving license:

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