Mehdi Tale Masouleh

Curriculum Vitæ

University of Tehran (Assistant Prof.)
Faculty of New Sciences and Technologies
Robotic Laboratory
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Education

Oct. 2011	Postdoctoral Mechanical Engineering (Robotic) **Laval University**, Québec, Canada
Oct. 2010	Ph.D. Mechanical Engineering (Robotic) **Laval University**, Québec, Canada
May 2007	Master Mechanical Engineering (Robotic) **Laval University**, Québec, Canada
May 2006	Bachelor's Degree Mechanical Engineering **Laval University**, Québec, Canada

Languages

English	Fluent
French	Fluent

Research Interests

- Kinematics dynamics of serial and parallel robots
- Application Screw theory in robotics
- Algebraic geometry and its applications in robotic
- Optimization of robotic mechanical systems (Interval analysis and Convex optimization)
- Human and robot interaction
- Static and Dynamic balancing of robotic mechanical system
- Mobile robots
- Humanoid

Scholarships and Awards

- 2 years Scholarship for Master, provided by Robotic Laboratory of Laval University
- 4 years Scholarships For Ph.D., provided by Robotic Laboratory of Laval University.

Projects

- Development and control of a Gough-Stewart platform with servo-pneumatic actuator
- Development of a spherical 3-DOF and 2-DOF parallel robots
- Singularity analysis of parallel robots using Grassmann-Cayley Algebra interval analysis and convex optimization
- Optimization & kinematic sensitivity of cable-driven parallel robots
- Development of a GUI for the forward kinematic problem
- Development of a 3-DOF decoupled parallel robot
- Development of a 4-DOF semi-decoupled parallel robot
- Dynamic analysis of parallel robot with identical limb structures
- Path planing based on vision for Humanoid (NAO H25) and mobile robot (e-puck)

Supervising Experiences

1. 4 Undergraduate students, University of Tehran & K.N. Toosi University
2. 10 master's students: University of Tehran &KNTU
3. One Ph.D. student

References

- Prof. Gosselin, Université Laval, Canada
- Prof. Husty, University of Innsbruck, Austria
- Prof. Kong, Heriot-Watt University, UK
- Prof. Ilian Bonev, ETS, Canada
- Prof. Caro , École Centrale Nantes IRCCyN
- Prof. Philippe Cardou, Université Laval, Canada

Computer Skills

- Computer algebra system: Matlab, Maple
- CAD system: AutoCAD, Pro/E, SolidWorks, ADAMS

Curriculum Vitæ
(Publications of Mehdi Tale Masouleh)

Journal Papers (10)

1. Determination of Singularity-free Zones in the Workspace of Planar 3-PRR Parallel Mechanisms, ,Mehdi Tale Masouleh and Clément Gosselin, International Journal of Mechanical Design(ASME), 2007, 129, pp. 649–652 .

2. **(INVITED PAPER FOR SPECIAL ISSUE)** Kinematic Analysis of 5-RPRRR (3T2R) Parallel Mechanisms, Mehdi Tale Masouleh, Clément Gosselin, Mohammad Hossein Saadatzi, Xianwen Kong, Hamid D. Taghirad, Meccanica, 2011, 46: pp. 131–146, Springer.

3. Forward Kinematic Problem of 5-RPUR Parallel Mechanisms (3T2R), Mehdi Tale Masouleh, Manfred Husty, Clément Gosselin and Dominic Walter. Mechanism and Machine Theory (Elsevier), 2011, 46, pp. 945–959.

4. Workspace Analysis of 5-PRUR Parallel Mechanisms (3T2R), Mehdi Tale Masouleh, Mohammad Hossein Saadatzi, Clément Gosselin, Hamid D. Taghirad. To be appear, Robotics and Computer-Integrated Manufacturing-(Elsevier), 2012, 28(3), pp. 437–448.

5. Singularity Analysis of 5-RPRRR Parallel Mechanisms (3T2R), Mehdi Tale Masouleh and Clément Gosselin, the International Journal of Advanced Manufacturing Technology (Springer), 2011, 57, pp. 1107–1121.

6. Kinematic Mapping and Forward Kinematic Problem of 5-DOF (3T2R) and 4-DOF (3T1R) Parallel Mechanisms with Identical Limb Structures, Mehdi Tale Masouleh. C. Gosselin, To appear, International Journal of Robotics.

7. Singularity Analysis of 3T2R Parallel Mechanisms using Grassmann-Cayley Algebra and Grassmann Line Geometry, Semaan Amine, Mehdi Tale Masouleh, Stephane Caro, Philippe Wenger, Clément Gosselin, To appear, Journal of Mechanism and Machine Theory, Elsevier.

8. Singularity Conditions of 3T1R Parallel Manipulators with Identical Limb Structures, Semaan Amine, Mehdi Tale Masouleh, Stephane Caro, Philippe Wenger, Clement Gosselin, To appear, Intrenational Journal of Mechanisms and Robotics, ASME.

9. Geometric Analysis of the Kinematic Sensitivity of Planar Parallel Mechanisms, Mohammad Hossein Saadatzi, Mehdi Tale Masouleh, Hamid D. Taghirad, Clement Gosselin and Philippe Cardou, To appear, Intrenational Journal of CSME, 2011, 35(4), pp. 477–490.

10. Singularity Analysis of 3T1R Parallel Manipulators with Identical Limb Structures, Semaan Amine, Mehdi Tale Masouleh, Stephane Caro, Philippe Wenger, Clement Gosselin, To appear, Intrenational Journal of CSME, 2011, 35(4), pp. 515–528,.

Journal and Conference Papers (18)

1. Kinematic Analysis of 5-DOF Parallel Mechanisms (3T2R) with Prismatic Actuators Based on Identical Limbs, Mehdi Tale Masouleh and Clément Gosselin, CCToMM 2007.

2. Kinematic Analysis and Benchmarking of a Family of Parallel Mechanisms, Triptron, Quadrupteron and Pentapteron, ICRA(*IEEE International Conference on Robotics and Automation* 10-14 April 2007), C. M. Gosselin, M. Tale Masouleh, V. Duchaine, P-L. Richard, S. Foucault and X. Kong,

3. Kinematic Analysis and Singularity Representation of 5-RPRRR Parallel Mechanisms. ASME International Design Engineering Technical Conferences, Mehdi Tale Masouleh and Clément Gosselin, 2007 Las Vegas, Nevada.

4. Kinematic Analysis and Singularity Representation of 5-RPRRR Parallel Mechanism, Mehdi Tale Masouleh and Clément Gosselin, International Workshop on Fundamental Issues and Future Research Directions for Parallel Mechanisms and Manipulators, Montpellier, 2008.

5. Singularity Analysis of 5-RPRRR Parallel Mechanisms via Grassmann Line Geometry, Mehdi Tale Masouleh and Clément Gosselin, ASME 2009 International Design Engineering Technical Conferences (IDETC), The 33rd Mechanisms and Robotics Conference, San Diego, California, USA.

6. **(BOOK CHAPTER)** Forward Kinematic Problem of 5-PRUR Parallel Mechanisms Using Study Parameters, Mehdi Tale Masouleh, Manfred Husty and Clement Gosselin. ARK 2010.

7. A General Methodology for the Forward Kinematic Problem of Symmetrical Parallel Mechanisms and Application to 5-PRUR parallel mechanisms (3T2R), Mehdi Tale Masouleh, Manfred Husty and Clement Gosselin. ASME 2010.

8. A Geometric Constructive Approach for the Workspace Analysis of Symmetrical 5-PRUR Parallel Mechanisms (3T2R), Mehdi Tale Masouleh, Mohammad Hossein Saadatzi, Clement Gosselin, Hamid D. Taghirad, ASME 2010.

Conference Papers (Continue)

9. Forward Kinematic Problem and Constant Orientation Workspace of 5-RPRRR (3T2R) Parallel Mechanisms, Mehdi Tale Masouleh, Clement Gosselin, Mohammad Hossein Saadatzi and Hamid D. Taghirad. ICEE 2010.

10. Minimal Force Jump within Human and Assistive Robot Cooperation, Hamid Abdi, Saeid Nahavandi, Mehdi Tale Masouleh, IROS2010.

11. Forward Kinematics of the Symmetric 5-DOF Parallel Mechanisms (3R2T) Using the Linear Implicitization Algorithm, Mehdi Tale Masouleh, Dominic. R. Walter, Manfred. Husty, Clément Gosselin, Accepted for IFToMM 2011.

12. Singularity Analysis of 5-DOF Parallel Mechanisms 3T2R using Grassmann-Cayley Algebra, Semaan Amine, Mehdi Tale Masouleh, Stephane Caro, Philippe Wenger, Clément Gosselin, IFToMM 2011.

13. Multi-Objective Scale Independent Optimization of 3-RPR Parallel Mechanisms, Mohammad Hossein Saadatzi, Mehdi Tale Masouleh, Hamid D. Taghirad, Clément Gosselin, Mohammad Teshnehlab, IFToMM 2011.

14. On the Optimum Design of 3-RPR Parallel Mechanisms, Mohammad Hossein Saadatzi, Mehdi Tale Masouleh, Hamid D. Taghirad, Clément Gosselin, Philippe Cardou, ICEE 2011.

15. Geometric Analysis of the Kinematic Sensitivity of Planar Parallel Mechanisms, Mohammad Hossein Saadatzi, Mehdi Tale Masouleh, Hamid D. Taghirad, Clement Gosselin and Philippe Cardou, CCToMM2011 Symposium on Mechanisms, Machines, and Mechatronics.

16. Singularity Analysis of 3T1R Parallel Manipulators with Identical Limb Structures, Semaan Amine, Mehdi Tale Masouleh, Stephane Caro, Philippe Wenger, Clement Gosselin, CCToMM2011 Symposium on Mechanisms, Machines, and Mechatronics.

17. Solving the Forward Kinematic Problem of 4-DOF Parallel Mechanisms (3T1R) with Identical Limb Structures and Revolute Actuators Using the Linear Implicitization Algorithm, Mehdi Tale Masouleh, Dominic Walter, Manfred Husty and Clément Gosselin, ASME/IDTEC 2011.

Conference Papers (Continue)

18. Application of Grassmann-Cayley Algebra and Grassmann Line Geometry to the Singularity Analysis of 3T1R Parallel Manipulators with Identical Limb Structures, Semaan Amine , Mehdi Tale Masouleh, Stephane Caro, Philippe Wenger and Clément Gosselin, ASME/IDTEC 2011.

19. (**BOOK CHAPTER**) Feasible Kinematic Sensitivity in Cable Robots Based on Interval Analysis, S. A. Khalili Pour, A. Zarif. H. D. Taghirad, M. Tale Masouleh, First International Conference on Cable-Driven Parallel Robots