

Luigi Villani

List of Publications by Year in descending order

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100
papers

4,306
citations

186265

28
h-index

138484

58
g-index

107
all docs

107
docs citations

107
times ranked

2865
citing authors

| # | ARTICLE | IF | CITATIONS |
|----|--|------|-----------|
| 1 | Robot Force Control. , 1999, , . | | 333 |
| 2 | Variable Impedance Control of Redundant Manipulators for Intuitive Human-Robot Physical Interaction. IEEE Transactions on Robotics, 2015, 31, 850-863. | 10.3 | 326 |
| 3 | Six-DOF Impedance Control of Dual-Arm Cooperative Manipulators. IEEE/ASME Transactions on Mechatronics, 2008, 13, 576-586. | 5.8 | 213 |
| 4 | A survey of robot interaction control schemes with experimental comparison. IEEE/ASME Transactions on Mechatronics, 1999, 4, 273-285. | 5.8 | 192 |
| 5 | Six-DOF impedance control based on angle/axis representations. IEEE Transactions on Automation Science and Engineering, 1999, 15, 289-300. | 2.3 | 168 |
| 6 | Task-Space Control of Robot Manipulators With Null-Space Compliance. IEEE Transactions on Robotics, 2014, 30, 493-506. | 10.3 | 134 |
| 7 | Position-Based Visual Servoing in Industrial Multirobot Cells Using a Hybrid Camera Configuration. , 2007, 23, 73-86. | | 130 |
| 8 | Force/position regulation of compliant robot manipulators. IEEE Transactions on Automatic Control, 1994, 39, 647-652. | 5.7 | 113 |
| 9 | The Tricept robot: dynamics and impedance control. IEEE/ASME Transactions on Mechatronics, 2003, 8, 263-268. | 5.8 | 96 |
| 10 | Visual Grasp Planning for Unknown Objects Using a Multifingered Robotic Hand. IEEE/ASME Transactions on Mechatronics, 2013, 18, 1050-1059. | 5.8 | 91 |
| 11 | Output feedback control for attitude tracking. Systems and Control Letters, 1999, 38, 91-98. | 2.3 | 89 |
| 12 | Resolved-acceleration control of robot manipulators: A critical review with experiments. Robotica, 1998, 16, 565-573. | 1.9 | 87 |
| 13 | Tracking control for underwater vehicle-manipulator systems with velocity estimation. IEEE Journal of Oceanic Engineering, 2000, 25, 399-413. | 3.8 | 85 |
| 14 | An exponentially stable adaptive control for force and position tracking of robot manipulators. IEEE Transactions on Automatic Control, 1999, 44, 798-802. | 5.7 | 72 |
| 15 | Actuators fault diagnosis for robot manipulators with uncertain model. Control Engineering Practice, 2009, 17, 146-157. | 5.5 | 63 |
| 16 | Cartesian impedance control of redundant manipulators for human-robot co-manipulation. , 2014, , . | | 58 |
| 17 | A passivity-based approach to force regulation and motion control of robot manipulators. Automatica, 1996, 32, 443-447. | 5.0 | 55 |
| 18 | Adaptive extended Kalman filtering for visual motion estimation of 3D objects. Control Engineering Practice, 2007, 15, 123-134. | 5.5 | 53 |

| # | ARTICLE | IF | CITATIONS |
|----|---|------|-----------|
| 19 | Autonomy in surgical robots and its meaningful human control. Paladyn, 2019, 10, 30-43. | 2.7 | 53 |
| 20 | Integration for the next generation. IEEE Robotics and Automation Magazine, 2005, 12, 53-64. | 2.0 | 51 |
| 21 | Dynamic multi-priority control in redundant robotic systems. Robotica, 2013, 31, 1155-1167. | 1.9 | 47 |
| 22 | Adaptive Observer for Fault Diagnosis in Nonlinear Discrete-Time Systems. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 2008, 130, . | 1.6 | 44 |
| 23 | Passive Virtual Fixtures Adaptation in Minimally Invasive Robotic Surgery. IEEE Robotics and Automation Letters, 2018, 3, 3129-3136. | 5.1 | 44 |
| 24 | THE ROLE OF EULER PARAMETERS IN ROBOT CONTROL. Asian Journal of Control, 1999, 1, 25-34. | 3.0 | 41 |
| 25 | Adaptive compliant control of robot manipulators. Control Engineering Practice, 1996, 4, 705-712. | 5.5 | 39 |
| 26 | A Grasping Force Optimization Algorithm for Multiarm Robots With Multifingered Hands. IEEE Transactions on Robotics, 2013, 29, 55-67. | 10.3 | 33 |
| 27 | Lagrange and Newton-Euler dynamic modeling of a gear-driven robot manipulator with inclusion of motor inertia effects. Advanced Robotics, 1995, 10, 317-334. | 1.8 | 32 |
| 28 | Force and position tracking: parallel control with stiffness adaptation. IEEE Control Systems, 1998, 18, 27-33. | 0.8 | 32 |
| 29 | An inverse kinematics algorithm for interaction control of a flexible arm with a compliant surface. Control Engineering Practice, 2001, 9, 191-198. | 5.5 | 32 |
| 30 | An open architecture for sensory feedback control of a dual-arm industrial robotic cell. Industrial Robot, 2007, 34, 46-53. | 2.1 | 32 |
| 31 | A Position-Based Visual Impedance Control for Robot Manipulators. Proceedings - IEEE International Conference on Robotics and Automation, 2007, , . | 0.0 | 30 |
| 32 | Position and orientation estimation based on Kalman filtering of stereo images. , 0, , . | | 25 |
| 33 | Managing redundant visual measurements for accurate pose tracking. Robotica, 2003, 21, 511-519. | 1.9 | 25 |
| 34 | An External Force Sensing System for Minimally Invasive Robotic Surgery. IEEE/ASME Transactions on Mechatronics, 2020, 25, 1543-1554. | 5.8 | 24 |
| 35 | An experimental study of adaptive force/position control algorithms for an industrial robot. IEEE Transactions on Control Systems Technology, 2000, 8, 777-786. | 5.2 | 23 |
| 36 | Null-space impedance control with disturbance observer. , 2012, , . | | 22 |

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| 37 | Nonprehensile Manipulation of Deformable Objects: Achievements and Perspectives from the Robotic Dynamic Manipulation Project. IEEE Robotics and Automation Magazine, 2018, 25, 83-92. | 2.0 | 22 |
| 38 | An adaptive force/position regulator for robot manipulators. International Journal of Adaptive Control and Signal Processing, 1993, 7, 389-403. | 4.1 | 20 |
| 39 | Fault diagnosis for AUVs using support vector machines. , 2004, , . | | 20 |
| 40 | Grasp planning and parallel control of a redundant dual-arm/hand manipulation system. Robotica, 2013, 31, 1169-1194. | 1.9 | 20 |
| 41 | Control of redundant robot arms with null-space compliance and singularity-free orientation representation. Robotics and Autonomous Systems, 2018, 100, 186-193. | 5.1 | 20 |
| 42 | Robot impedance control with nondiagonal stiffness. IEEE Transactions on Automatic Control, 1999, 44, 1943-1946. | 5.7 | 19 |
| 43 | Parallel force and position control of flexible manipulators. IET Control Theory and Applications, 2000, 147, 605-612. | 1.7 | 19 |
| 44 | A New Laparoscopic Tool With In-Hand Rolling Capabilities for Needle Reorientation. IEEE Robotics and Automation Letters, 2018, 3, 2354-2361. | 5.1 | 19 |
| 45 | Experiments of impedance control on an industrial robot manipulator with joint friction. , 0, , . | | 17 |
| 46 | Robot Interaction Control Using Force and Vision. , 2006, , . | | 17 |
| 47 | A Flexible Robotic Depalletizing System for Supermarket Logistics. IEEE Robotics and Automation Letters, 2020, 5, 4471-4476. | 5.1 | 17 |
| 48 | Human-Robot Interaction Control Using Force and Vision. Lecture Notes in Control and Information Sciences, 2007, , 51-70. | 1.0 | 17 |
| 49 | Multi-priority control in redundant robotic systems. , 2011, , . | | 15 |
| 50 | Grasping and Control of Multi-Fingered Hands. Springer Tracts in Advanced Robotics, 2012, , 219-266. | 0.4 | 15 |
| 51 | Quaternion-based impedance with nondiagonal stiffness for robot manipulators. , 1998, , . | | 14 |
| 52 | RGB-D Recognition and Localization of Cases for Robotic Depalletizing in Supermarkets. IEEE Robotics and Automation Letters, 2020, 5, 6233-6238. | 5.1 | 14 |
| 53 | Achieving a cooperative behavior in a dual-arm robot system via a modular control structure. Journal of Field Robotics, 2001, 18, 691-699. | 0.7 | 13 |
| 54 | Interaction Control of Robot Manipulators Using Force and Vision. International Journal of Optomechatronics, 2008, 2, 257-274. | 6.6 | 13 |

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| 55 | The MUSA underactuated hand for robot-aided minimally invasive surgery. <i>International Journal of Medical Robotics and Computer Assisted Surgery</i> , 2019, 15, e1981. | 2.3 | 13 |
| 56 | A Reconfigurable Gripper for Robotic Autonomous Depalletizing in Supermarket Logistics. <i>IEEE Robotics and Automation Letters</i> , 2020, 5, 4612-4617. | 5.1 | 13 |
| 57 | 3D pose estimation for robotic applications based on a multi-camera hybrid visual system. , 0, , . | | 12 |
| 58 | A grasping force optimization algorithm for dexterous robotic hands. , 2012, , . | | 12 |
| 59 | Global Impedance Control of Dual-Arm Manipulation for Safe Interaction. <i>IFAC Postprint Volumes IPPV / International Federation of Automatic Control</i> , 2012, 45, 767-772. | 0.4 | 12 |
| 60 | Multi-fingered grasp synthesis based on the object dynamic properties. <i>Robotics and Autonomous Systems</i> , 2013, 61, 626-636. | 5.1 | 12 |
| 61 | Two-time scale force and position control of flexible manipulators. , 0, , . | | 10 |
| 62 | Vision-based Virtual Fixtures Generation for Robotic-Assisted Polyp Dissection Procedures. , 2019, , . | | 10 |
| 63 | Fault Diagnosis for Industrial Robots. , 2003, , 85-108. | | 10 |
| 64 | An output feedback parallel force/position regulator for a robot manipulator in contact with a compliant environment. <i>Systems and Control Letters</i> , 1997, 29, 295-300. | 2.3 | 9 |
| 65 | RePLiCS: an environment for open real-time control of a dual-arm industrial robotic cell based on RTAI-Linux. , 2005, , . | | 9 |
| 66 | Robot force/position control with force and visual feedback. , 2007, , . | | 9 |
| 67 | Floating visual grasp of unknown objects. , 2009, , . | | 9 |
| 68 | Online dextrous-hand grasping force optimization with dynamic torque constraints selection. , 2011, , . | | 9 |
| 69 | A unified fuzzy logic approach to trajectory planning and inverse kinematics for a fire fighting robot operating in tunnels. <i>Intelligent Service Robotics</i> , 2008, 1, 41-49. | 2.6 | 8 |
| 70 | Fast multi-fingered grasp synthesis based on object dynamic properties. , 2010, , . | | 8 |
| 71 | Priority oriented adaptive control of kinematically redundant manipulators. , 2012, , . | | 8 |
| 72 | Visual servoing with safe interaction using image moments. , 2015, , . | | 8 |

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| 73 | Parallel Force/Position Control Schemes with Experiments on an Industrial Robot Manipulator. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 1996, 29, 25-30. | 0.4 | 7 |
| 74 | Output Feedback Control of Mechanical Systems with Application to Spacecraft and Robots. Journal of Guidance, Control, and Dynamics, 2003, 26, 273-282. | 2.8 | 7 |
| 75 | An Occlusion Prediction Algorithm for Visual Servoing Tasks in a Multi-Arm Robotic Cell. , 0, , . | | 7 |
| 76 | Preshaped visual grasp of unknown objects with a multi-fingered hand. , 2010, , . | | 7 |
| 77 | Kinematic control with force feedback for a redundant bimanual manipulation system. , 2011, , . | | 6 |
| 78 | POSITION-BASED VISUAL SERVOING IN INDUSTRIAL MULTI-ARM ROBOTIC CELLS USING MULTIPLE CAMERAS. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2006, 39, 43-48. | 0.4 | 5 |
| 79 | Fuzzy Trajectory Planning and Redundancy Resolution for a Fire Fighting Robot Operating in Tunnels. , 0, , . | | 4 |
| 80 | A robotic system for fire fighting in tunnels. , 0, , . | | 4 |
| 81 | Redundancy Resolution in Human-Robot Co-manipulation with Cartesian Impedance Control. Springer Tracts in Advanced Robotics, 2016, , 165-176. | 0.4 | 4 |
| 82 | Multi-priority control in redundant robotic systems. , 2011, , . | | 4 |
| 83 | VISUAL MOTION TRACKING WITH FULL ADAPTIVE EXTENDED KALMAN FILTER: AN EXPERIMENTAL STUDY. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2005, 38, 283-288. | 0.4 | 3 |
| 84 | An Experimental Investigation on Impedance Control for Dual-Arm Cooperative Systems. , 2007, , . | | 3 |
| 85 | A grasping force optimization algorithm with dynamic torque constraints selection for multi-fingered robotic hands. , 2011, , . | | 3 |
| 86 | Compliant hand-arm control with soft fingers and force sensing for human-robot interaction. , 2012, , . | | 3 |
| 87 | Experimental study on task space control during physical human robot interaction. , 2014, , . | | 3 |
| 88 | A Lyapunov-Stable Adaptive Scheme for Force Regulation and Motion Control of Robot Manipulators. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 1995, 28, 227-232. | 0.4 | 2 |
| 89 | Sliding manifold approach to the control of rigid robots: Experimental results. Control Engineering Practice, 1997, 5, 619-625. | 5.5 | 2 |
| 90 | Passivity-Based Interaction Controller and Observer for Robot Manipulators. Journal of Dynamic Systems, Measurement and Control, Transactions of the ASME, 1998, 120, 516-520. | 1.6 | 2 |

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| 91 | Inverse Kinematics with Fuzzy Redundancy Resolution for a Fire Fighting Robot. , 2004, , 283-292. | | 2 |
| 92 | Quaternion-Based Impedance Control for Dual-Robot Cooperation. , 2000, , 59-66. | | 2 |
| 93 | A Framework for Force and Visual Control of Robot Manipulators. Springer Tracts in Advanced Robotics, 2010, , 373-382. | 0.4 | 2 |
| 94 | Design of parallel force/position controllers and observers for robot manipulators. , 1997, , . | | 1 |
| 95 | Human-aware Interaction Control of Robot Manipulators Based on Force and Vision. Lecture Notes in Control and Information Sciences, 2009, , 209-225. | 1.0 | 1 |
| 96 | Force and Visual Control for Safe Human-Robot Interaction. Advances in Intelligent and Soft Computing, 2010, , 1-16. | 0.2 | 1 |
| 97 | Tracking Control of Redundant Manipulators with Singularity-Free Orientation Representation and Null-Space Compliant Behaviour. Springer Proceedings in Advanced Robotics, 2019, , 15-28. | 1.3 | 1 |
| 98 | A Singular Perturbation Approach to Control of Flexible Arms in Compliant Motion. , 2006, , 253-269. | | 0 |
| 99 | A LYAPUNOV-STABLE ADAPTIVE SCHEME FOR FORCE REGULATION AND MOTION CONTROL OF ROBOT MANIPULATORS. , 1995, , 227-232. | | 0 |
| 100 | Interaction Control. , 2001, , 121-154. | | 0 |