Robert Mahony

List of Publications by Year
in descending order

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158	7,790	159585	71685
papers	citations	30	76
		h-index	g-index

160	160	160	4515
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	Nonlinear Complementary Filters on the Special Orthogonal Group. IEEE Transactions on Automatic Control, 2008, 53, 1203-1218.	5.7	1,310
2	Multirotor Aerial Vehicles: Modeling, Estimation, and Control of Quadrotor. IEEE Robotics and Automation Magazine, 2012, 19, 20-32.	2.0	1,105
3	Modelling and control of a large quadrotor robot. Control Engineering Practice, 2010, 18, 691-699.	5.5	422
4	A complementary filter for attitude estimation of a fixed-wing UAV. , 2008, , .		315
5	A Practical Visual Servo Control for an Unmanned Aerial Vehicle. , 2008, 24, 331-340.		284
6	Landing a VTOL Unmanned Aerial Vehicle on a Moving Platform Using Optical Flow. IEEE Transactions on Robotics, 2012, 28, 77-89.	10.3	278
7	Visual servoing of an under-actuated dynamic rigid-body system: an image-based approach. IEEE Transactions on Automation Science and Engineering, 2002, 18, 187-198.	2.3	251
8	Riemannian Geometry of Grassmann Manifolds with a View on Algorithmic Computation. Acta Applicandae Mathematicae, 2004, 80, 199-220.	1.0	241
9	DYNAMIC MODELLING AND CONFIGURATION STABILIZATION FOR AN X4-FLYER.. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2002, 35, 217-222.	0.4	190
10	Robust trajectory tracking for a scale model autonomous helicopter. International Journal of Robust and Nonlinear Control, 2004, 14, 1035-1059.	3.7	190
11	Convergence of the Iterates of Descent Methods for Analytic Cost Functions. SIAM Journal on Optimization, 2005, 16, 531-547.	2.0	167
12	Image-Based Visual Servo Control of the Translation Kinematics of a Quadrotor Aerial Vehicle. , 2009, 25, 743-749.		158
13	Hovering flight and vertical landing control of a VTOL Unmanned Aerial Vehicle using optical flow. , 2008, , .		119
14	Gradient-Like Observers for Invariant Dynamics on a Lie Group. IEEE Transactions on Automatic Control, 2010, 55, 367-377.	5.7	107
15	Real-time Model Predictive Control for Quadrotors. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2014, 47, 11773-11780.	0.4	94
16	Implementation of a Nonlinear Attitude Estimator for Aerial Robotic Vehicles. IEEE Transactions on Control Systems Technology, 2014, 22, 201-213.	5.2	91
17	The geometry of weighted low-rank approximations. IEEE Transactions on Signal Processing, 2003, 51, 500-514.	5.3	78
18	Image based visual servo control for a class of aerial robotic systems. Automatica, 2007, 43, 1975-1983.	5.0	72

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19	Minimum-Energy Filtering for Attitude Estimation. IEEE Transactions on Automatic Control, 2013, 58, 2917-2921.	5.7	53
20	Reducing the Sim-to-Real Gap for Event Cameras. Lecture Notes in Computer Science, 2020, , 534-549.	1.3	53
21	Thrust Control for Multirotor Aerial Vehicles. IEEE Transactions on Robotics, 2017, 33, 390-405.	10.3	52
22	Observer design on the Special Euclidean group SE(3). , 2011, , .		50
23	Dynamic SLAM: The Need For Speed. , 2020, , .		50
24	Complementary filter design on the Special Euclidean group SE(3). , 2007, , .		49
25	Continuous-Time Intensity Estimation Using Event Cameras. Lecture Notes in Computer Science, 2019, , 308-324.	1.3	49
26	The Geometry of the Newton Method on Non-Compact Lie Groups. Journal of Global Optimization, 2002, 23, 309-327.	1.8	48
27	A nonlinear observer for 6 DOF pose estimation from inertial and bearing measurements. , 2009, , .		47
28	A novel approach to haptic tele-operation of aerial robot vehicles. , 2010, , .		46
29	Design principles of large quadrotors for practical applications. , 2009, , .		44
30	Analysis of Non-Linear Attitude Observers for Time-Varying Reference Measurements. IEEE Transactions on Automatic Control, 2012, 57, 2789-2800.	5.7	44
31	A terrain-following control approach for a VTOL Unmanned Aerial Vehicle using average optical flow. Autonomous Robots, 2010, 29, 381-399.	4.8	43
32	A new framework for force feedback teleoperation of robotic vehicles based on optical flow. , 2009, , .		42
33	A Robust Docking Strategy for a Mobile Robot Using Flow Field Divergence. IEEE Transactions on Robotics, 2008, 24, 832-842.	10.3	41
34	A practical Visual Servo Control for a Unmanned Aerial Vehicle. Proceedings - IEEE International Conference on Robotics and Automation, 2007, , .	0.0	39
35	Nonlinear complementary filters on the special linear group. International Journal of Control, 2012, 85, 1557-1573.	1.9	39
36	A non-linear observer for attitude estimation of a fixed-wing unmanned aerial vehicle without GPS measurements. Transactions of the Institute of Measurement and Control, 2011, 33, 699-717.	1.7	37

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37	An Extrinsic Look at the Riemannian Hessian. Lecture Notes in Computer Science, 2013, , 361-368.	1.3	37
38	Lumpable hidden Markov models-model reduction and reduced complexity filtering. IEEE Transactions on Automatic Control, 2000, 45, 2297-2306.	5.7	36
39	Nonlinear attitude observers on SO(3) for complementary and compatible measurements: A theoretical study. , 2009, , .		36
40	Asynchronous Spatial Image Convolutions for Event Cameras. IEEE Robotics and Automation Letters, 2019, 4, 816-822.	5.1	36
41	CED: Color Event Camera Dataset. , 2019, , .		36
42	A geometric nonlinear observer for simultaneous localisation and mapping. , 2017, , .		34
43	Observers for invariant systems on Lie groups with biased input measurements and homogeneous outputs. Automatica, 2015, 55, 19-26.	5.0	33
44	Aerial Robotics and the Quadrotor [From the Guest Editors]. IEEE Robotics and Automation Magazine, 2012, 19, 19-19.	2.0	32
45	Spectrum estimation of interleaved pulse trains. IEEE Transactions on Signal Processing, 1999, 47, 1646-1653.	5.3	30
46	Aerial SLAM with a single camera using visual expectation. , 2011, , .		29
47	Output feedback observation and control for visual servoing of VTOL UAVs. International Journal of Robust and Nonlinear Control, 2011, 21, 1008-1030.	3.7	29
48	Robust estimation of planar surfaces using spatio-temporal RANSAC for applications in autonomous vehicle navigation. Robotics and Autonomous Systems, 2012, 60, 16-28.	5.1	29
49	System Identification and Control of an Aerobot Drive System. , 2007, , .		28
50	Observers for Kinematic Systems with Symmetry. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2013, 46, 617-633.	0.4	28
51	Near-Optimal Deterministic Filtering on the Rotation Group. IEEE Transactions on Automatic Control, 2011, 56, 1411-1414.	5.7	27
52	Recursive attitude estimation in the presence of multi-rate and multi-delay vector measurements. , 2015, , .		27
53	Comparative Study of Haptic Interfaces for Bilateral Teleoperation of VTOL Aerial Robots. IEEE Transactions on Systems, Man, and Cybernetics: Systems, 2016, 46, 1352-1363.	9.3	27
54	The constrained newton method on a Lie group and the symmetric eigenvalue problem. Linear Algebra and Its Applications, 1996, 248, 67-89.	0.9	26

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55	Dynamic Kinesthetic Boundary for Haptic Teleoperation of VTOL Aerial Robots in Complex Environments. IEEE Transactions on Systems, Man, and Cybernetics: Systems, 2016, 46, 694-705.	9.3	26
56	Shonan Rotation Averaging: Global Optimality by Surfing $$SO(p)^n$$. Lecture Notes in Computer Science, 2020, , 292-308.	1.3	25
57	Statistical analysis of signal measurement in time-of-flight cameras. ISPRS Journal of Photogrammetry and Remote Sensing, 2011, 66, 720-731.	11.1	24
58	Gradient-like observer design on the Special Euclidean group SE(3) with system outputs on the real projective space. , 2015, , .		24
59	Design of a Static Thruster for Microair Vehicle Rotorcraft. Journal of Aerospace Engineering, 2009, 22, 85-94.	1.4	23
60	Homography estimation on the Special Linear group based on direct point correspondence. , 2011, , .		21
61	Aerodynamic power control for multirotor aerial vehicles. , 2014, , .		21
62	Second-Order-Optimal Minimum-Energy Filters on Lie Groups. IEEE Transactions on Automatic Control, 2016, 61, 2906-2919.	5.7	21
63	Cubically Convergent Iterations for Invariant Subspace Computation. SIAM Journal on Matrix Analysis and Applications, 2004, 26, 70-96.	1.4	20
64	Stability and performance of image based visual servo control using first order spherical image moments. , 2006, , .		20
65	Dynamic estimation of homography transformations on the special linear group for visual servo control. , 2009, , .		20
66	The landing problem of a VTOL Unmanned Aerial Vehicle on a moving platform using optical flow. , 2010, , .		20
67	An Asynchronous Kalman Filter for Hybrid Event Cameras. , 2021, , .		20
68	Identification of linear time-varying systems using a modified least-squares algorithm. Automatica, 2000, 36, 1009-1015.	5.0	19
69	Estimating body-fixed frame velocity and attitude from inertial measurements for a quadrotor vehicle. , 2014, , .		19
70	State estimation for invariant systems on Lie groups with delayed output measurements. Automatica, 2016, 68, 254-265.	5.0	19
71	Attitude control of rigid body dynamics from biased IMU measurements. , 2007, , .		18
72	Dynamic Image-Based Visual Servo Control For An Aerial Robot: Theory and Experiments. International Journal of Optomechatronics, 2008, 2, 296-325.	6.6	17

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73	Nonlinear attitude estimation with measurement decoupling and anti-windup gyro-bias compensation. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2011, 44, 2972-2978.	0.4	16
74	Observers for Position Estimation Using Bearing and Biased Velocity Information. Lecture Notes in Control and Information Sciences, 2017, , 3-23.	1.0	16
75	Attitude tracking of rigid bodies on the special orthogonal group with bounded partial state feedback. , 2009, , .		15
76	A nonlinear terrain-following controller for a VTOL unmanned aerial vehicle using translational optical flow. , 2009, , .		15
77	Approach maneuvers for autonomous landing using visual servo control. IEEE Transactions on Aerospace and Electronic Systems, 2014, 50, 1051-1065.	4.7	15
78	A Filter Formulation for Computing Real Time Optical Flow. IEEE Robotics and Automation Letters, 2016, 1, 1192-1199.	5.1	14
79	Statistical analysis of measurement processes for time-of-flight cameras. , 2009, , .		13
80	Vision based control of aerial robotic vehicles using the port Hamiltonian framework. , 2011, , .		13
81	A port-Hamiltonian approach to image-based visual servo control for dynamic systems. International Journal of Robotics Research, 2012, 31, 1303-1319.	8.5	13
82	Featureâ€based recursive observer design for homography estimation and its application to image stabilization. Asian Journal of Control, 2019, 21, 1443-1458.	3.0	13
83	Representation of vehicle dynamics in haptic teleoperation of aerial robots. , 2013, , .		12
84	The Role of Symmetry in Rigidity Analysis: A Tool for Network Localization and Formation Control. IEEE Transactions on Automatic Control, 2018, 63, 1313-1328.	5.7	12
85	Equivariant Filter Design for Kinematic Systems on Lie Groups. IFAC-PapersOnLine, 2021, 54, 253-260.	0.9	12
86	Observer Design for Nonlinear Systems with Equivariance. Annual Review of Control, Robotics, and Autonomous Systems, 2022, 5, 221-252.	11.8	12
87	A soft output hybrid algorithm for ML/MAP sequence estimation. IEEE Transactions on Information Theory, 1998, 44, 3129-3134.	2.4	11
88	Visuo-inertial fusion for homography-based filtering and estimation. , 2013, , .		11
89	Intercontinental haptic teleoperation of a flying vehicle: A step towards real-time applications. , 2013, , .		11
90	Velocity aided attitude estimation on SO(3) with sensor delay. , 2014, , .		11

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91	Velocity aided attitude estimation for aerial robotic vehicles using latent rotation scaling. , 2016, , .		11
92	Output regulation for systems on matrix Lie-groups. Automatica, 2018, 87, 8-16.	5.0	11
93	Constructive observer design for Visual Simultaneous Localisation and Mapping. Automatica, 2021, 132, 109803.	5.0	11
94	The continuous-time Rayleigh quotient flow on the sphere. Linear Algebra and Its Applications, 2003, 368, 343-357.	0.9	10
95	Adaptive filtering and image based visual servo control of a ducted fan flying robot. , 2006, , .		10
96	Near-optimal deterministic filtering on the unit circle. , 2009, , .		10
97	3D tracking of water hazards with polarized stereo cameras. , 2017, , .		10
98	Supervisory Control of Multirotor Vehicles in Challenging Conditions Using Inertial Measurements. IEEE Transactions on Robotics, 2018, 34, 1490-1501.	10.3	10
99	An Equivariant Filter for Visual Inertial Odometry. , 2021, , .		10
100	Optical-Flow Based Strategies for Landing VTOL UAVs in Cluttered Environments. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2014, 47, 3176-3183.	0.4	9
101	A second order minimum-energy filter on the special orthogonal group. , 2012, , .		8
102	Second-order-optimal filters on Lie groups. , 2013, , .		8
103	Dynamic kinesthetic boundary for haptic teleoperation of aerial robotic vehicles. , 2013, , .		8
104	A port-Hamiltonian approach to formation control using bearing measurements and range observers. , 2013, , .		8
105	Modeling and Control of Aerial Robots. , 2016, , 1307-1334.		8
106	Estimating Ego-Motion in Panoramic Image Sequences with Inertial Measurements. Springer Tracts in Advanced Robotics, 2011, , 87-101.	0.4	8
107	Equivariant Filter Design for Inertial Navigation Systems with Input Measurement Biases. , 2022, , .		8
108	Output stabilization of square nonlinear systems. Automatica, 1997, 33, 1571-1577.	5.0	7

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109	Spatio-Temporal RANSAC for Robust Estimation of Ground Plane in Video Range Images for Automotive Applications. , 2008, , .		7
110	A general optical flow based terrain-following strategy for a VTOL UAV using multiple views. , 2010, , .		7
111	A discrete-time attitude observer on SO(3) for vision and GPS fusion. , 2017, , .		7
112	Attitude Observation for Second Order Attitude Kinematics. , 2019, , .		7
113	Waypoint Planning for Autonomous Aerial Inspection of Large-Scale Solar Farms. , 2019, , .		7
114	An homogeneous space geometry for simultaneous localisation and mapping. Annual Reviews in Control, 2021, 51, 254-267.	7.9	7
115	Equivariant Filter (EqF): A General Filter Design for Systems on Homogeneous Spaces. , 2020, , .		7
116	Observer design for position and velocity bias estimation from a single direction output. , 2015, , .		6
117	A Geometric Observer Design for Visual Localisation and Mapping. , 2019, , .		6
118	A robotic vision system for inspection of soiling at CSP plants. AIP Conference Proceedings, 2020, , .	0.4	6
119	Nonlinear observer design on <mml:math xmlns:mml="http://www.w3.org/1998/Math/MathML" display="inline" id="d1e194" altimg="si2.svg"><mml:mrow><mml:mi mathvariant="normal">SL</mml:mi><mml:mrow><mml:mo>(</mml:mo><mml:mn>3</mml:mn><mml:mo>)</mml:mo></mml:mrow></mml:mrow> for homography estimation by exploiting point and line correspondences with application to image stabilization. Automatica, 2020, 115, 108858.	5.0	6
120	Equivariant Systems Theory and Observer Design for Second Order Kinematic Systems on Matrix Lie Groups. , 2020, , .		6
121	A Passivity-Based Approach to Formation Control Using Partial Measurements of Relative Position. IEEE Transactions on Automatic Control, 2015, , 1-1.	5.7	5
122	Haptics-aided path planning and virtual fixture based dynamic kinesthetic boundary for bilateral teleoperation of VTOL aerial robots. , 2016, , .		5
123	Image-based visual servo control for circular trajectories for a fixed-wing aircraft. , 2009, , .		4
124	An intuitive multimodal haptic interface for teleoperation of aerial robots. , 2014, , .		4
125	On the distance to optimality of the geometric approximate minimum-energy attitude filter. , 2014, , .		4
126	Sensing and Control on the Sphere. Springer Tracts in Advanced Robotics, 2011, , 71-85.	0.4	4

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127	Near-optimal deterministic attitude filtering. , 2010, , .		3
128	Adding an integrator for output regulation of systems with matrix Lie-group states. , 2015, , .		3
129	Output regulation on the Special Euclidean Group SE(3). , 2016, , .		3
130	Equivariant Visual Odometry in the Wild. , 2020, , .		3
131	An Observer Design for Visual Simultaneous Localisation and Mapping with Output Equivariance. IFAC-PapersOnLine, 2020, 53, 9560-9565.	0.9	3
132	Pose Observation for Second Order Pose Kinematics. IFAC-PapersOnLine, 2020, 53, 2317-2323.	0.9	3
133	Generalized forgetting functions for on-line least-squares identification of time-varying systems. International Journal of Adaptive Control and Signal Processing, 2001, 15, 393-413.	4.1	2
134	Visual servoing of a VTOL vehicle using virtual states. , 2007, , .		2
135	On the structure of kinematic systems with complete symmetry. , 2018, , .		2
136	Learning Real-time Closed Loop Robotic Reaching from Monocular Vision by Exploiting A Control Lyapunov Function Structure. , 2019, , .		2
137	Homography Estimation of a Moving Planar Scene From Direct Point Correspondence. IEEE Transactions on Control Systems Technology, 2021, 29, 1284-1295.	5.2	2
138	A bondgraph approach to formation control using relative state measurements. , 2013, , .		2
139	Equivariant Observers for Second-Order Systems on Matrix Lie Groups. IEEE Transactions on Automatic Control, 2023, 68, 2468-2474.	5.7	2
140	Static-state feedback laws for output regulation of non-linear systems. Control Engineering Practice, 1996, 4, 1009-1014.	5.5	1
141	Super-Resolution of Speed Signs in Video Sequences. , 2007, , .		1
142	A Converse Liapunov Theorem for Uniformly Locally Exponentially Stable Systems Admitting CarathÃ©odory Solutions *. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2010, 43, 1374-1378.	0.4	1
143	Explicit complementary observer design on Special Linear Group SL(3) for homography estimation using conic correspondences. , 2017, , .		1
144	A Dual Joystick-Trackball Interface for Accurate and Time-Efficient Teleoperation of Cable-Driven Parallel Robots within Large Workspaces. Mechanisms and Machine Science, 2019, , 391-402.	0.5	1

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145	A Minimum Energy Filter for Localisation of an Unmanned Aerial Vehicle. , 2020, , .		1
146	End-to-end Multi-Instance Robotic Reaching from Monocular Vision. , 2021, , .		1
147	Estimation of Homography Dynamics on the Special Linear Group. Lecture Notes in Control and Information Sciences, 2010, , 133-150.	1.0	1
148	Controlling the longitudinal dynamics of a vehicle using sensor based haptic feedback. , 2008, , .		0
149	Kinematic Visual Servo Controls of an X4-Flyer: Practical Study. AIP Conference Proceedings, 2008, , .	0.4	0
150	Output based Observation and Control for Visual Servoing of VTOL UAV's. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2008, 41, 8558-8563.	0.4	0
151	Image-based visual navigation for mobile robots. , 2013, , .		0
152	Modular Design of Image Based Visual Servo Control for Dynamic Mechanical Systems. Springer Tracts in Advanced Robotics, 2017, , 129-146.	0.4	0
153	A Geometric Observer for Scene Reconstruction Using Plenoptic Cameras. , 2018, , .		0
154	SynthÃ¨se d'un contrÃ1eur permettant la stabilisation de vitesse d'un drone de type X4-Flyer via la correction d'assiette. Journal Europeen Des Systemes Automatises, 2008, 42, 117-138.	0.4	0
155	Shadow Segmentation Using Time-of-Flight Cameras. Lecture Notes in Computer Science, 2011, , 78-87.	1.3	0
156	Network-based structure flow estimation. , 2020, , .		0
157	A General Approach to State Refinement. , 2021, , .		0
158	Autonomous Error and Constructive Observer Design for Group Affine Systems. , 2021, , .		0