

Stergios I Roumeliotis

List of Publications by Year in descending order

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88
papers

5,683
citations

218677

26
h-index

345221

36
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89
all docs

89
docs citations

89
times ranked

3566
citing authors

#	ARTICLE	IF	CITATIONS
1	A Multi-State Constraint Kalman Filter for Vision-aided Inertial Navigation. Proceedings - IEEE International Conference on Robotics and Automation, 2007, , .	0.0	898
2	A Kalman Filter-Based Algorithm for IMU-Camera Calibration: Observability Analysis and Performance Evaluation. IEEE Transactions on Robotics, 2008, 24, 1143-1156.	10.3	361
3	SOI-KF: Distributed Kalman Filtering With Low-Cost Communications Using the Sign of Innovations. IEEE Transactions on Signal Processing, 2006, 54, 4782-4795.	5.3	300
4	Vision-Aided Inertial Navigation for Spacecraft Entry, Descent, and Landing. IEEE Transactions on Robotics, 2009, 25, 264-280.	10.3	278
5	Multirobot Active Target Tracking With Combinations of Relative Observations. IEEE Transactions on Robotics, 2011, 27, 678-695.	10.3	225
6	Consistency Analysis and Improvement of Vision-aided Inertial Navigation. IEEE Transactions on Robotics, 2014, 30, 158-176.	10.3	183
7	Observability-based Rules for Designing Consistent EKF SLAM Estimators. International Journal of Robotics Research, 2010, 29, 502-528.	8.5	182
8	Camera-IMU-based localization: Observability analysis and consistency improvement. International Journal of Robotics Research, 2014, 33, 182-201.	8.5	177
9	Consensus in Ad Hoc WSNs With Noisy Links Part II: Distributed Estimation and Smoothing of Random Signals. IEEE Transactions on Signal Processing, 2008, 56, 1650-1666.	5.3	156
10	Distributed maximum a posteriori estimation for multi-robot cooperative localization. , 2009, , .		149
11	Decentralized Quantized Kalman Filtering With Scalable Communication Cost. IEEE Transactions on Signal Processing, 2008, 56, 3727-3741.	5.3	142
12	Multi-robot SLAM with Unknown Initial Correspondence: The Robot Rendezvous Case. , 2006, , .		141
13	3D LIDAR camera intrinsic and extrinsic calibration: Identifiability and analytical least-squares-based initialization. International Journal of Robotics Research, 2012, 31, 452-467.	8.5	130
14	Analysis and improvement of the consistency of extended Kalman filter based SLAM. , 2008, , .		126
15	Set-Membership Constrained Particle Filter: Distributed Adaptation for Sensor Networks. IEEE Transactions on Signal Processing, 2011, 59, 4122-4138.	5.3	126
16	Kalman Filtering in Wireless Sensor Networks. IEEE Control Systems, 2010, 30, 66-86.	0.8	122
17	Decentralized multi-robot cooperative localization using covariance intersection. , 2013, , .		105
18	VINS on wheels. , 2017, , .		104

#	ARTICLE	IF	CITATIONS
19	Autonomous Stair Climbing for Tracked Vehicles. International Journal of Robotics Research, 2007, 26, 737-758.	8.5	92
20	Propagation of Uncertainty in Cooperative Multirobot Localization: Analysis and Experimental Results. Autonomous Robots, 2004, 17, 41-54.	4.8	82
21	Observability-based consistent EKF estimators for multi-robot cooperative localization. Autonomous Robots, 2011, 30, 99-122.	4.8	78
22	A Quadratic-Complexity Observability-Constrained Unscented Kalman Filter for SLAM. IEEE Transactions on Robotics, 2013, 29, 1226-1243.	10.3	70
23	Two Efficient Solutions for Visual Odometry Using Directional Correspondence. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2012, 34, 818-824.	13.9	65
24	A First-Estimates Jacobian EKF for Improving SLAM Consistency. Springer Tracts in Advanced Robotics, 2009, , 373-382.	0.4	61
25	Globally optimal pose estimation from line correspondences. , 2011, , .		57
26	Interrobot Transformations in 3-D. IEEE Transactions on Robotics, 2010, 26, 226-243.	10.3	51
27	Cooperative multi-robot localization under communication constraints. , 2009, , .		50
28	A comparative analysis of tightly-coupled monocular, binocular, and stereo VINS. , 2017, , .		50
29	Recursive decentralized localization for multi-robot systems with asynchronous pairwise communication. International Journal of Robotics Research, 2018, 37, 1152-1167.	8.5	50
30	SC-KF Mobile Robot Localization: A Stochastic Cloning Kalman Filter for Processing Relative-State Measurements. , 2007, 23, 717-730.		49
31	Design and Analysis of a Portable Indoor Localization Aid for the Visually Impaired. International Journal of Robotics Research, 2010, 29, 1400-1415.	8.5	47
32	A Laser-Aided Inertial Navigation System (L-INS) for human localization in unknown indoor environments. , 2010, , .		42
33	Descending-stair detection, approach, and traversal with an autonomous tracked vehicle. , 2010, , .		40
34	Towards Consistent Vision-Aided Inertial Navigation. Springer Tracts in Advanced Robotics, 2013, , 559-574.	0.4	39
35	A dual-layer estimator architecture for long-term localization. , 2008, , .		38
36	C-KLAM: Constrained keyframe-based localization and mapping. , 2014, , .		38

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37	On the complexity and consistency of UKF-based SLAM. , 2009, , .		37
38	IMU-RGBD camera 3D pose estimation and extrinsic calibration: Observability analysis and consistency improvement. , 2013, , .		36
39	The Jet Propulsion Laboratory Autonomous Helicopter Testbed: A platform for planetary exploration technology research and development. Journal of Field Robotics, 2006, 23, 245-267.	6.0	35
40	Efficient and consistent vision-aided inertial navigation using line observations. , 2013, , .		35
41	On the Consistency of Vision-Aided Inertial Navigation. Springer Tracts in Advanced Robotics, 2013, , 303-317.	0.4	34
42	1 A Kalman filter-based algorithm for IMU-camera calibration. , 2007, , .		32
43	On the Performance of Multi-robot Target Tracking. Proceedings - IEEE International Conference on Robotics and Automation, 2007, , .	0.0	28
44	An Indoor Localization Aid for the Visually Impaired. Proceedings - IEEE International Conference on Robotics and Automation, 2007, , .	0.0	27
45	An observability-constrained sliding window filter for SLAM. , 2011, , .		26
46	Recursive Decentralized Collaborative Localization for Sparsely Communicating Robots. , 0, , .		26
47	An analytical least-squares solution to the odometer-camera extrinsic calibration problem. , 2012, , .		25
48	Detecting and dealing with hovering maneuvers in vision-aided inertial navigation systems. , 2013, , .		24
49	Consistent map-based 3D localization on mobile devices. , 2017, , .		23
50	An observability-constrained sliding window filter for SLAM. , 2011, , .		21
51	Power-SLAM: a linear-complexity, anytime algorithm for SLAM. International Journal of Robotics Research, 2011, 30, 772-788.	8.5	21
52	Cooperative vision-aided inertial navigation using overlapping views. , 2012, , .		21
53	Asynchronous Multi-Centralized Cooperative Localization. , 2010, , .		20
54	On the global optimum of planar, range-based robot-to-robot relative pose estimation. , 2010, , .		20

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55	Particle filter adaptation for distributed sensors via set membership. , 2010, , .		20
56	Determining 3-D Relative Transformations for Any Combination of Range and Bearing Measurements. IEEE Transactions on Robotics, 2013, 29, 458-474.	10.3	19
57	Resource-Aware Large-Scale Cooperative Three-Dimensional Mapping Using Multiple Mobile Devices. IEEE Transactions on Robotics, 2018, 34, 1349-1369.	10.3	17
58	Active vision-based robot localization and navigation in a visual memory. , 2011, , .		16
59	An analytical least-squares solution to the line scan LIDAR-camera extrinsic calibration problem. , 2013, , .		16
60	IMU-RGBD camera navigation using point and plane features. , 2013, , .		16
61	Determining the camera to robot-body transformation from planar mirror reflections. , 2008, , .		15
62	A Bank of Maximum <i>A Posteriori</i> (MAP) Estimators for Target Tracking. IEEE Transactions on Robotics, 2015, 31, 85-103.	10.3	15
63	A hybrid estimation framework for Cooperative Localization under communication constraints. , 2011, , .		14
64	High-speed autonomous quadrotor navigation through visual and inertial paths. International Journal of Robotics Research, 2019, 38, 486-504.	8.5	14
65	A 3D pose estimator for the visually impaired. , 2009, , .		11
66	Multi-robot active target tracking with distance and bearing observations. , 2009, , .		9
67	Determining the robot-to-robot 3D relative pose using combinations of range and bearing measurements (Part II). , 2011, , .		9
68	Consistency analysis and improvement for single-camera localization. , 2012, , .		9
69	A bank of maximum a posteriori estimators for single-sensor range-only target tracking. , 2010, , .		8
70	Determining the robot-to-robot 3D relative pose using combinations of range and bearing measurements: 14 minimal problems and closed-form solutions to three of them. , 2010, , .		8
71	A communication-bandwidth-aware hybrid estimation framework for multi-robot cooperative localization. , 2013, , .		8
72	Observability analysis of a vision-aided inertial navigation system using planar features on the ground. , 2013, , .		8

#	ARTICLE	IF	CITATIONS
73	An iterative Kalman smoother for robust 3D localization on mobile and wearable devices. , 2015, , .		8
74	Determining the Robot-to-Robot Relative Pose Using Range-only Measurements. Proceedings - IEEE International Conference on Robotics and Automation, 2007, , .	0.0	7
75	Bearing-only target tracking using a bank of MAP estimators. , 2011, , .		6
76	Decentralized Visual-Inertial Localization and Mapping on Mobile Devices for Augmented Reality. , 2019, , .		6
77	Analytically-selected multi-hypothesis incremental MAP estimation. , 2013, , .		5
78	Power-SLAM: A linear-complexity, consistent algorithm for SLAM. , 2007, , .		4
79	Optimized motion strategies for localization in leader-follower formations. , 2011, , .		4
80	On filter consistency of discrete-time nonlinear systems with partial-state measurements. , 2013, , .		4
81	Autonomous Flights Through Image-Defined Paths. Springer Proceedings in Advanced Robotics, 2018, , 39-55.	1.3	3
82	Distributed Iteratively Quantized Kalman Filtering for Wireless Sensor Networks. Conference Record of the Asilomar Conference on Signals, Systems and Computers, 2007, , .	0.0	2
83	A sparsity-aware QR decomposition algorithm for efficient cooperative localization. , 2012, , .		2
84	Analytically-guided-sampling particle filter applied to range-only target tracking. , 2013, , .		2
85	RISE-SLAM: A Resource-aware Inverse Schmidt Estimator for SLAM. , 2019, , .		2
86	Attitude Tracking from Camera and Accelerometer on Gyro-Less Devices. Springer Proceedings in Advanced Robotics, 2022, , 477-492.	1.3	1
87	A hybrid estimation framework for cooperative localization under communication constraints. , 2011, , .		0
88	Hybrid maximum a posteriori estimation under communication constraints. , 2013, , .		0