Sebastian Scherer

List of Publications by Year
in descending order

95	4,553	430874	477307
papers	citations	18	29
		h-index	g-index

96	96	96	3629
all docs	docs citations	times ranked	citing authors

#	Article	IF	Citations
1	VoxNet: A 3D Convolutional Neural Network for real-time object recognition. , 2015, , .		1,903
2	CubeSLAM: Monocular 3-D Object SLAM. IEEE Transactions on Robotics, 2019, 35, 925-938.	10.3	257
3	Flying Fast and Low Among Obstacles: Methodology and Experiments. International Journal of Robotics Research, 2008, 27, 549-574.	8.5	188
4	3D Convolutional Neural Networks for landing zone detection from LiDAR. , 2015, , .		133
5	River mapping from a flying robot: state estimation, river detection, and obstacle mapping. Autonomous Robots, 2012, 33, 189-214.	4.8	111
6	First results in detecting and avoiding frontal obstacles from a monocular camera for micro unmanned aerial vehicles. , 2013, , .		97
7	Pop-up SLAM: Semantic monocular plane SLAM for low-texture environments. , 2016, , .		89
8	RGB-D SLAM in Dynamic Environments Using Point Correlations. IEEE Transactions on Pattern Analysis and Machine Intelligence, 2022, 44, 373-389.	13.9	82
9	Autonomous landing at unprepared sites by a full-scale helicopter. Robotics and Autonomous Systems, 2012, 60, 1545-1562.	5.1	72
10	Flying Fast and Low Among Obstacles. Proceedings - IEEE International Conference on Robotics and Automation, 2007, , .	0.0	70
11	Monocular Object and Plane SLAM in Structured Environments. IEEE Robotics and Automation Letters, 2019, 4, 3145-3152.	5.1	62
12	Super Odometry: IMU-centric LiDAR-Visual-Inertial Estimator for Challenging Environments. , 2021, , .		58
13	Autonomous aerial cinematography in unstructured environments with learned artistic decisionâ€making. Journal of Field Robotics, 2020, 37, 606-641.	6.0	57
14	Semantic 3D occupancy mapping through efficient high order CRFs. , 2017, , .		56
15	Regionally accelerated batch informed trees (RABIT*): A framework to integrate local information into optimal path planning. , 2016, , .		54
16	Autonomous Exploration for Infrastructure Modeling with a Micro Aerial Vehicle. Springer Tracts in Advanced Robotics, 2016, , 427-440.	0.4	52
17	Towards a Robust Aerial Cinematography Platform: Localizing and Tracking Moving Targets in Unstructured Environments. , 2019, , .		51
18	A Multi-Sensor Fusion MAV State Estimation from Long-Range Stereo, IMU, GPS and Barometric Sensors. Sensors, 2017, 17, 11.	3.8	49

#	Article	IF	Citations
19	Autonomous Exploration and Motion Planning for an Unmanned Aerial Vehicle Navigating Rivers. Journal of Field Robotics, 2015, 32, 1141-1162.	6.0	46
20	Direct monocular odometry using points and lines. , 2017, , .		43
21	Robust Autonomous Flight in Constrained and Visually Degraded Shipboard Environments. Journal of Field Robotics, 2017, 34, 25-52.	6.0	43
22	A Robust Laser-Inertial Odometry and Mapping Method for Large-Scale Highway Environments. , 2019, , .		40
23	Sparse Tangential Network (SPARTAN): Motion planning for micro aerial vehicles. , 2013, , .		39
24	A Joint Optimization Approach of LiDAR-Camera Fusion for Accurate Dense 3-D Reconstructions. IEEE Robotics and Automation Letters, 2019, 4, 3585-3592.	5.1	39
25	Can a Robot Become a Movie Director? Learning Artistic Principles for Aerial Cinematography. , 2019, , .		37
26	Wire detection using synthetic data and dilated convolutional networks for unmanned aerial vehicles. , 2017, , .		36
27	3D-SiamRPN: An End-to-End Learning Method for Real-Time 3D Single Object Tracking Using Raw Point Cloud. IEEE Sensors Journal, 2021, 21, 4995-5011.	4.7	34
28	Learning obstacle avoidance parameters from operator behavior. Journal of Field Robotics, 2006, 23, 1037-1058.	6.0	33
29	Line-Based 2-D–3-D Registration and Camera Localization in Structured Environments. IEEE Transactions on Instrumentation and Measurement, 2020, 69, 8962-8972.	4.7	30
30	Monocular Camera Localization in Prior LiDAR Maps with 2D-3D Line Correspondences. , 2020, , .		30
31	Online safety verification of trajectories for unmanned flight with offline computed robust invariant sets. , 2015, , .		29
32	RRT*-AR: Sampling-based alternate routes planning with applications to autonomous emergency landing of a helicopter. , 2013, , .		27
33	DSVP: Dual-Stage Viewpoint Planner for Rapid Exploration by Dynamic Expansion. , 2021, , .		27
34	Real-time onboard 6DoF localization of an indoor MAV in degraded visual environments using a RGB-D camera. , 2015, , .		26
35	Self-supervised segmentation of river scenes. , 2011, , .		25
36	Infrastructure-free shipdeck tracking for autonomous landing. , 2013, , .		24

#	Article	IF	Citations
37	Robust multi-sensor fusion for micro aerial vehicle navigation in GPS-degraded/denied environments. , 2014, , .		24
38	Randomized algorithm for informative path planning with budget constraints. , 2017, , .		24
39	TP-TIO: A Robust Thermal-Inertial Odometry with Deep ThermalPoint. , 2020, , .		23
40	Automatic Real-time Anomaly Detection for Autonomous Aerial Vehicles. , 2019, , .		20
41	Learning Visuomotor Policies for Aerial Navigation Using Cross-Modal Representations. , 2020, , .		20
42	In-flight positional and energy use data set of a DJI Matrice 100 quadcopter for small package delivery. Scientific Data, 2021, 8, 155.	5.3	19
43	ULSD: Unified line segment detection across pinhole, fisheye, and spherical cameras. ISPRS Journal of Photogrammetry and Remote Sensing, 2021, 178, 187-202.	11.1	18
44	Autonomous River Exploration. Springer Tracts in Advanced Robotics, 2015, , 93-106.	0.4	16
45	AirDOS: Dynamic SLAM benefits from Articulated Objects. , 2022, , .		16
46	Deep-Learning Assisted High-Resolution Binocular Stereo Depth Reconstruction. , 2020, , .		15
47	Looking forward: A semantic mapping system for scouting with micro-aerial vehicles. , 2017, , .		14
48	Real-time 3D scene layout from a single image using Convolutional Neural Networks. , 2016, , .		13
49	CVaR-based Flight Energy Risk Assessment for Multirotor UAVs using a Deep Energy Model. , 2021, , .		13
50	Efficient C-space and cost function updates in 3D for unmanned aerial vehicles. , 2009, , .		12
51	Robust Autonomous Flight in Constrained and Visually Degraded Environments. Springer Tracts in Advanced Robotics, 2016, , 411-425.	0.4	12
52	Experimental study of odometry estimation methods using RGB-D cameras. , 2014, , .		11
53	Real-Time Ellipse Detection for Robotics Applications. IEEE Robotics and Automation Letters, 2021, 6, 7009-7016.	5.1	11
54	A framework for optimal repairing of vector field-based motion plans. , 2016, , .		10

#	Article	IF	Citations
55	LiDAR-enhanced Structure-from-Motion. , 2020, , .		10
56	A ΚΊΤΕ in the wind: Smooth trajectory optimization in a moving reference frame. , 2017, , .		9
57	Visual Place Recognition in Long-term and Large-scale Environment based on CNN Feature. , 2018, , .		9
58	Improving Learning-based Ego-motion Estimation with Homomorphism-based Losses and Drift Correction. , 2019, , .		9
59	Do You See What I See? Coordinating Multiple Aerial Cameras for Robot Cinematography. , 2021, , .		9
60	Wind and the City: Utilizing UAV-Based In-Situ Measurements for Estimating Urban Wind Fields. , 2020, , .		9
61	DROAN â€" Disparity-space representation for obstacle AvoidaNce. , 2017, , .		8
62	Path Planning for Unmanned Fixed-Wing Aircraft in Uncertain Wind Conditions Using Trochoids. , 2018, , .		8
63	Visual Memorability for Robotic Interestingness via Unsupervised Online Learning. Lecture Notes in Computer Science, 2020, , 52-68.	1.3	8
64	TartanDrive: A Large-Scale Dataset for Learning Off-Road Dynamics Models. , 2022, , .		8
65	Precision UAV Landing in Unstructured Environments. Springer Proceedings in Advanced Robotics, 2020, , 177-187.	1.3	7
66	The planner ensemble: Motion planning by executing diverse algorithms. , 2015, , .		6
67	PASP: Policy based approach for sensor planning. , 2015, , .		6
68	Decentralized Method for Sub-Swarm Deployment and Rejoining. , 2018, , .		6
69	Planning and Monitoring Multi-Job Type Swarm Search and Service Missions. Journal of Intelligent and Robotic Systems: Theory and Applications, 2021, 101, 1.	3.4	6
70	Batteries, camera, action! Learning a semantic control space for expressive robot cinematography. , 2021, , .		6
71	Bayesian Active Edge Evaluation on Expensive Graphs. , 2018, , .		6
72	Unsupervised Online Learning for Robotic Interestingness With Visual Memory. IEEE Transactions on Robotics, 2022, 38, 2446-2461.	10.3	6

#	Article	IF	Citations
73	A Robust Multi-Stereo Visual-Inertial Odometry Pipeline. , 2020, , .		6
74	First results in autonomous landing and obstacle avoidance by a full-scale helicopter. , 2012, , .		5
75	DROAN - Disparity-Space Representation for Obstacle Avoidance: Enabling Wire Mapping & Avoidance. , 2018, , .		5
76	Improved Generalization of Heading Direction Estimation for Aerial Filming Using Semi-Supervised Regression. , 2019, , .		5
77	Real-time Motion Planning of Curvature Continuous Trajectories for Urban UAV Operations in Wind. , 2020, , .		5
78	The Dynamics Projection Filter (DPF) - real-time nonlinear trajectory optimization using projection operators. , 2015, , .		4
79	List prediction applied to motion planning. , 2016, , .		4
80	Monocular Visual Odometry Using Template Matching and IMU. IEEE Sensors Journal, 2021, 21, 17207-17218.	4.7	4
81	AirCode: A Robust Object Encoding Method. IEEE Robotics and Automation Letters, 2022, 7, 1816-1823.	5.1	4
82	Predicting Like A Pilot: Dataset and Method to Predict Socially-Aware Aircraft Trajectories in Non-Towered Terminal Airspace. , 2022, , .		4
83	Unified Representation of Geometric Primitives for Graph-SLAM Optimization Using Decomposed Quadrics. , 2022, , .		4
84	Learning to Drive Among Obstacles. , 2006, , .		3
85	High performance and safe flight of full‐scale helicopters from takeoff to landing with an ensemble of planners. Journal of Field Robotics, 2019, 36, 1275-1332.	6.0	3
86	Improving Off-road Planning Techniques with Learned Costs from Physical Interactions. , 2021, , .		3
87	3D Segmentation Learning From Sparse Annotations and Hierarchical Descriptors. IEEE Robotics and Automation Letters, 2021, 6, 5953-5960.	5.1	3
88	Mission-level Robustness with Rapidly-deployed, Autonomous Aerial Vehicles by Carnegie Mellon Team Tartan at MBZIRC 2020. , 2022, 2, 172-200.		3
89	AirLoop: Lifelong Loop Closure Detection. , 2022, , .		3
90	Hybrid Model for A Priori Performance Prediction of Multi-Job Type Swarm Search and Service Missions. , 2019, , .		2

#	Article	IF	Citations
91	Efficient Trajectory Library Filtering for Quadrotor Flight in Unknown Environments. , 2020, , .		2
92	3D Human Reconstruction in the Wild with Collaborative Aerial Cameras. , 2021, , .		2
93	ORStereo: Occlusion-Aware Recurrent Stereo Matching for 4K-Resolution Images. , 2021, , .		2
94	Connected invariant sets for high-speed motion planning in partially-known environments. , 2015, , .		0
95	Efficient Multiresolution Scrolling Grid for Stereo Vision-based MAV Obstacle Avoidance. , 2020, , .		0