

# Matthew Harker

## List of Publications by Year in descending order

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Version: 2024-02-01

68  
papers

395  
citations

1684129

5  
h-index

1125717

13  
g-index

68  
all docs

68  
docs citations

68  
times ranked

258  
citing authors

#	ARTICLE	IF	CITATIONS
1	Least squares surface reconstruction from measured gradient fields. , 2008, , .		56
2	Regularized Reconstruction of a Surface from its Measured Gradient Field. Journal of Mathematical Imaging and Vision, 2015, 51, 46-70.	1.3	54
3	Least squares surface reconstruction from gradients: Direct algebraic methods with spectral, Tikhonov, and constrained regularization. , 2011, , .		33
4	Direct type-specific conic fitting and eigenvalue bias correction. Image and Vision Computing, 2008, 26, 372-381.	4.5	32
5	An Algebraic Framework for Discrete Basis Functions in Computer Vision. , 2008, , .		27
6	A Framework for the Evaluation of Inclinometer Data in the Measurement of Structures. IEEE Transactions on Instrumentation and Measurement, 2012, 61, 1237-1251.	4.7	26
7	Direct regularized surface reconstruction from gradients for Industrial Photometric Stereo. Computers in Industry, 2013, 64, 1221-1228.	9.9	17
8	APPROXIMATION OF PHYSICAL MEASUREMENT DATA BY DISCRETE ORTHOGONAL EIGENFUNCTIONS OF LINEAR DIFFERENTIAL OPERATORS. Transactions of the Canadian Society for Mechanical Engineering, 2017, 41, 804-824.	0.8	7
9	Discrete polynomial moments for real-time geometric surface inspection. Journal of Electronic Imaging, 2009, 18, 013015.	0.9	6
10	Direct discrete variational curve reconstruction from derivatives and its application to track subsidence measurements. , 2011, , .		6
11	Towards condition monitoring of railway points: Instrumentation, measurement and signal processing. , 2016, , .		6
12	Direct numerical solution of stiff ODE systems in optimal control. , 2017, , .		6
13	Calibration, Measurement and Error Analysis of Optical Temperature Measurement via Laser Induced Fluorescence. Conference Record - IEEE Instrumentation and Measurement Technology Conference, 2007, , .	0.0	5
14	New approaches to machine vision based displacement analysis. , 2012, , .		5
15	Inverse boundary value problems with uncertain boundary values and their relevance to inclinometer measurements. , 2014, , .		5
16	Polynomial accurate numerical fractional order integration and differentiation. , 2014, , .		5
17	Sylvester Equations and the numerical solution of partial fractional differential equations. Journal of Computational Physics, 2015, 293, 370-384.	3.8	5
18	An inverse problem approach to approximating sensor data in cyber physical systems. , 2015, , .		5

#	ARTICLE	IF	CITATIONS
19	Global least squares solution for LTI system response. , 2017, , .		5
20	Direct Estimation of Homogeneous Vectors: An Ill-Solved Problem in Computer Vision. Lecture Notes in Computer Science, 2006, , 919-930.	1.3	5
21	Multidimensional Path Tracking With Global Least Squares Solution. IFAC-PapersOnLine, 2020, 53, 6189-6194.	0.9	5
22	Savitzky-Golay smoothing for multivariate cyclic measurement data. , 2010, , .		4
23	Constrained Polynomial Approximation for Inverse Problems in Engineering. Lecture Notes in Mechanical Engineering, 2019, , 225-244.	0.4	4
24	A Novel Method for Solving an Optimal Control Problem for a Numerically Stiff Independent Metering System. , 2020, , .		4
25	Combined Polynomial and Periodic Moments for the Analysis of Measured 3D Surfaces. , 2008, , .		3
26	Gram polynomial image decimation and its application to non-rigid registration. Proceedings of SPIE, 2011, , .	0.8	3
27	Polynomial approximation: An alternative to windowing in Fourier analysis. , 2011, , .		3
28	Large scale optical position sensitive detector. , 2013, , .		3
29	Machine vision system for the control of tunnel boring machines. Proceedings of SPIE, 2013, , .	0.8	3
30	Structural deformation measurement via efficient tensor polynomial calibrated electro-active glass targets. , 2013, , .		3
31	Instrumentation and Surface Modeling for the Measurement of Disks, Circular- and Cylindrical-Strips. IEEE Transactions on Instrumentation and Measurement, 2014, 63, 1181-1189.	4.7	3
32	Direct numerical solution of optimal control problems. , 2016, , .		3
33	Precision inclinometer measurement system with a wireless gateway. , 2016, , .		3
34	Trapezoidal rule and its error analysis for the GrÃ¼nwald-Letnikov operator. International Journal of Dynamics and Control, 2017, 5, 18-29.	2.5	3
35	System Identification Under General Norms for Linear Parameter Varying State-Space Systems via Sparse Matrix Methods. , 2022, , .		3
36	Discrete polynomial moments and the extraction of 3-D embossed digits for recognition. Journal of Electronic Imaging, 2010, 19, 031205.	0.9	2

#	ARTICLE	IF	CITATIONS
37	Non-rigid registration for quality control of printed materials. Proceedings of SPIE, 2011, , .	0.8	2
38	Instrumentation for the 3D measurement of circular disks and the quantification of warpage. , 2013, , .		2
39	Analytic Multisource Data Fusion and its Application to a Large-Scale Optical PSD. IEEE Transactions on Instrumentation and Measurement, 2014, 63, 1116-1126.	4.7	2
40	Mining Sensor Data in Larger Physical Systems. IFAC-PapersOnLine, 2016, 49, 37-42.	0.9	2
41	Discrete Inverse Problem Approach to Path Tracking in State Space Form. , 2018, , .		2
42	Force and acoustic emission measurements for condition monitoring of fine blanking tools. , 2018, , .		2
43	Surface Modelling Using Discrete Basis Functions for Real-Time Automatic Inspection. , 2012, , 216-264.		2
44	Coordinated Trajectory Tracking as an Inverse Problem with Applications to Collaborative Robotics. , 2022, , .		2
45	Incremental matrix orthogonalization with an application to curve fitting. , 2005, , .		1
46	Profile measurement via circle-line spline fitting. , 2009, , .		1
47	Wireless in-mold melt front detection for injection molding: A long-term evaluation. Journal of Applied Polymer Science, 2014, 131, .	2.6	1
48	Virtual calibration environment for a-priori estimation of measurement uncertainty. , 2014, , .		1
49	Mathematical model and software architecture for the solution of inverse problems involving sensor arrays. , 2014, , .		1
50	Self-calibrating optical 3D pose measurement device for offshore sites. , 2014, , .		1
51	An Algebraic Framework for the Real-Time Solution of Inverse Problems on Embedded Systems. , 2015, , .		1
52	MATLAB toolbox for the regularized surface reconstruction from gradients. , 2015, , .		1
53	MEMS based inclinometers: Noise characteristics and suitable signal processing. , 2017, , .		1
54	Global least squares for time-domain system identification of state-space models. , 2018, , .		1

#	ARTICLE	IF	CITATIONS
55	Hierarchical Decomposition and Approximation of Sensor Data. Lecture Notes in Mechanical Engineering, 2019, , 351-370.	0.4	1
56	Strain analysis by regularized non-rigid registration. , 2012, , .		0
57	WiP abstract: Model based design for the real-time solution of inverse problems in cyber-physical systems. , 2014, , .		0
58	Binocular approach to 3D pose measurement with auto-calibration. , 2015, , .		0
59	Non-contact measurement of circular surfaces via photometric stereo in polar coordinates. , 2016, , .		0
60	Numerical Solution of the Anomalous Diffusion Equation in a Rectangular Domain via Hypermatrix Equations. IFAC-PapersOnLine, 2017, 50, 9730-9735.	0.9	0
61	Regularized Fractional Order Integration and Differentiation Via Discrete Orthogonal Polynomials. SSRN Electronic Journal, 0, , .	0.4	0
62	Runge-Heun-Kutta Methods for Nonlinear Fractional Order Differential Equations. SSRN Electronic Journal, 2018, , .	0.4	0
63	Real-time tensor polynomial approximation of crosshatch measured geometric surface data. , 2018, , .		0
64	Analytic Approach to Finding Lines in Images and Estimating Their Uncertainty. Advances in Intelligent Systems and Computing, 2019, , 1280-1291.	0.6	0
65	Geometric Fitting, Registration and Identification for Large Sets of Spatial Measurement Data. Advances in Intelligent Systems and Computing, 2019, , 1292-1303.	0.6	0
66	Simultaneous Approximation of Measurement Values and Derivative Data using Discrete Orthogonal Polynomials. , 2019, , .		0
67	Discrete Variational Method for Sturm-Liouville Problems with Fractional Order Derivatives. SSRN Electronic Journal, 0, , .	0.4	0
68	Discrete Variational Method for Sturm-Liouville Problems with Fractional Order Derivatives. SSRN Electronic Journal, 0, , .	0.4	0