

Helmut Pottmann

List of Publications by Year in descending order

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89
papers

4,419
citations

117571

34
h-index

110317

64
g-index

91
all docs

91
docs citations

91
times ranked

1774
citing authors

#	ARTICLE	IF	CITATIONS
1	Computational Line Geometry. Mathematics and Visualization, 2001, , .	0.4	356
2	Geometric modeling with conical meshes and developable surfaces. ACM Transactions on Graphics, 2006, 25, 681-689.	4.9	292
3	Fitting B-spline curves to point clouds by curvature-based squared distance minimization. ACM Transactions on Graphics, 2006, 25, 214-238.	4.9	276
4	Discovering structural regularity in 3D geometry. ACM Transactions on Graphics, 2008, 27, 1-11.	4.9	219
5	Geometry and Convergence Analysis of Algorithms for Registration of 3D Shapes. International Journal of Computer Vision, 2006, 67, 277-296.	10.9	175
6	Integral invariants for robust geometry processing. Computer Aided Geometric Design, 2009, 26, 37-60.	0.5	161
7	Curved folding. ACM Transactions on Graphics, 2008, 27, 1-9.	4.9	131
8	Approximation algorithms for developable surfaces. Computer Aided Geometric Design, 1999, 16, 539-556.	0.5	128
9	Freeform surfaces from single curved panels. ACM Transactions on Graphics, 2008, 27, 1-10.	4.9	124
10	Architectural geometry. Computers and Graphics, 2015, 47, 145-164.	1.4	121
11	Geometry of multi-layer freeform structures for architecture. ACM Transactions on Graphics, 2007, 26, 65.	4.9	119
12	Paneling architectural freeform surfaces. ACM Transactions on Graphics, 2010, 29, 1-10.	4.9	116
13	Design of self-supporting surfaces. ACM Transactions on Graphics, 2012, 31, 1-11.	4.9	114
14	Registration without ICP. Computer Vision and Image Understanding, 2004, 95, 54-71.	3.0	112
15	Developable rational Bézier and B-spline surfaces. Computer Aided Geometric Design, 1995, 12, 513-531.	0.5	111
16	Applications of Laguerre geometry in CAGD. Computer Aided Geometric Design, 1998, 15, 165-186.	0.5	103
17	A Laguerre geometric approach to rational offsets. Computer Aided Geometric Design, 1998, 15, 223-249.	0.5	94
18	Interactive Design of Developable Surfaces. ACM Transactions on Graphics, 2016, 35, 1-12.	4.9	93

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19	Form-finding with polyhedral meshes made simple. ACM Transactions on Graphics, 2014, 33, 1-9.	4.9	88
20	Rotational and helical surface approximation for reverse engineering. Computing (Vienna/New York), 1998, 60, 307-322.	3.2	84
21	Locally optimal cutting positions for 5-axis sculptured surface machining. CAD Computer Aided Design, 2003, 35, 69-81.	1.4	79
22	A concept for parametric surface fitting which avoids the parametrization problem. Computer Aided Geometric Design, 2003, 20, 343-362.	0.5	74
23	A curvature theory for discrete surfaces based on mesh parallelity. Mathematische Annalen, 2010, 348, 1-24.	0.7	62
24	Shape space exploration of constrained meshes. ACM Transactions on Graphics, 2011, 30, 1-12.	4.9	60
25	Towards efficient 5-axis flank CNC machining of free-form surfaces via fitting envelopes of surfaces of revolution. CAD Computer Aided Design, 2016, 79, 1-11.	1.4	60
26	Geodesic patterns. ACM Transactions on Graphics, 2010, 29, 1-10.	4.9	52
27	The focal geometry of circular and conical meshes. Advances in Computational Mathematics, 2008, 29, 249-268.	0.8	48
28	Laguerre minimal surfaces, isotropic geometry and linear elasticity. Advances in Computational Mathematics, 2009, 31, 391-419.	0.8	47
29	Precise gouging-free tool orientations for 5-axis CNC machining. CAD Computer Aided Design, 2015, 58, 220-229.	1.4	47
30	Circular arc structures. ACM Transactions on Graphics, 2011, 30, 1-12.	4.9	46
31	Packing circles and spheres on surfaces. ACM Transactions on Graphics, 2009, 28, 1-8.	4.9	43
32	Constrained 3D shape reconstruction using a combination of surface fitting and registration. CAD Computer Aided Design, 2006, 38, 572-583.	1.4	40
33	Darboux cyclides and webs from circles. Computer Aided Geometric Design, 2012, 29, 77-97.	0.5	36
34	Automatic fitting of conical envelopes to free-form surfaces for flank CNC machining. CAD Computer Aided Design, 2017, 91, 84-94.	1.4	35
35	Polyhedral patterns. ACM Transactions on Graphics, 2015, 34, 1-12.	4.9	33
36	Architectural Geometry and Fabrication-Aware Design. Nexus Network Journal, 2013, 15, 195-208.	0.5	32

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37	From curve design algorithms to the design of rigid body motions. <i>Visual Computer</i> , 2004, 20, 279-297.	2.5	30
38	Geometry of multi-layer freeform structures for architecture. , 2007, , .		27
39	Quad-mesh based isometric mappings and developable surfaces. <i>ACM Transactions on Graphics</i> , 2020, 39, .	4.9	26
40	Cell packing structures. <i>CAD Computer Aided Design</i> , 2015, 60, 70-83.	1.4	25
41	Material-minimizing forms and structures. <i>ACM Transactions on Graphics</i> , 2017, 36, 1-12.	4.9	25
42	Optimizing B-spline surfaces for developability and paneling architectural freeform surfaces. <i>CAD Computer Aided Design</i> , 2019, 111, 29-43.	1.4	24
43	Discrete Surfaces in Isotropic Geometry. <i>Lecture Notes in Computer Science</i> , 2007, , 341-363.	1.0	23
44	Paneling architectural freeform surfaces. , 2010, , .		22
45	Discrete geodesic parallel coordinates. <i>ACM Transactions on Graphics</i> , 2019, 38, 1-13.	4.9	21
46	Architectural Geometry as Design Knowledge. <i>Architectural Design</i> , 2010, 80, 72-77.	0.1	18
47	Freeform Honeycomb Structures. <i>Computer Graphics Forum</i> , 2014, 33, 185-194.	1.8	18
48	Geometry and tool motion planning for curvature adapted CNC machining. <i>ACM Transactions on Graphics</i> , 2021, 40, 1-16.	4.9	18
49	Shape-morphing mechanical metamaterials. <i>CAD Computer Aided Design</i> , 2022, 143, 103146.	1.4	18
50	Geometric modeling with conical meshes and developable surfaces. , 2006, , .		17
51	Case Studies in Cost-Optimized Paneling of Architectural Freeform Surfaces. , 2010, , 49-72.		17
52	Geometric Computing for Freeform Architecture. <i>Journal of Mathematics in Industry</i> , 2011, 1, 4.	0.7	16
53	Curve-pleated structures. <i>ACM Transactions on Graphics</i> , 2019, 38, 1-13.	4.9	16
54	Infinitesimally flexible meshes and discrete minimal surfaces. <i>Monatshefte Fur Mathematik</i> , 2008, 153, 347-365.	0.5	15

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55	Packing circles and spheres on surfaces. , 2009, , .		15
56	Principal symmetric meshes. ACM Transactions on Graphics, 2020, 39, .	4.9	14
57	Freeform quad-based kirigami. ACM Transactions on Graphics, 2020, 39, 1-11.	4.9	14
58	Smooth surfaces from bilinear patches: Discrete affine minimal surfaces. Computer Aided Geometric Design, 2013, 30, 476-489.	0.5	13
59	New Strategies and Developments in Transparent Free-Form Design: From Facetted to Nearly Smooth Envelopes. International Journal of Space Structures, 2010, 25, 185-197.	0.3	12
60	Checkerboard patterns with black rectangles. ACM Transactions on Graphics, 2019, 38, 1-13.	4.9	11
61	Discretizations of Surfaces with Constant Ratio of Principal Curvatures. Discrete and Computational Geometry, 2020, 63, 670-704.	0.4	10
62	Computational design of weingarten surfaces. ACM Transactions on Graphics, 2021, 40, 1-11.	4.9	10
63	Edge offset meshes in Laguerre geometry. Advances in Computational Mathematics, 2010, 33, 45-73.	0.8	9
64	Multi-Nets. Classification of Discrete and Smooth Surfaces with Characteristic Properties on Arbitrary Parameter Rectangles. Discrete and Computational Geometry, 2020, 63, 624-655.	0.4	9
65	Using isometries for computational design and fabrication. ACM Transactions on Graphics, 2021, 40, 1-12.	4.9	9
66	Computational design of cold bent glass façades. ACM Transactions on Graphics, 2020, 39, 1-16.	4.9	9
67	Fair webs. Visual Computer, 2006, 23, 83-94.	2.5	8
68	Form Finding of Shell Bridges Using the <i>Pneumatic Forming of Hardened Concrete</i> Construction Principle. Advances in Civil Engineering, 2018, 2018, 1-14.	0.4	8
69	Designing patterns using triangle-quad hybrid meshes. ACM Transactions on Graphics, 2018, 37, 1-14.	4.9	8
70	Visual smoothness of polyhedral surfaces. ACM Transactions on Graphics, 2019, 38, 1-11.	4.9	8
71	Characterizing envelopes of moving rotational cones and applications in CNC machining. Computer Aided Geometric Design, 2020, 83, 101944.	0.5	8
72	Shape space exploration of constrained meshes. , 2011, , .		8

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73	Geodesic patterns. , 2010, , .		7
74	Ruled Laguerre minimal surfaces. <i>Mathematische Zeitschrift</i> , 2012, 272, 645-674.	0.4	6
75	Smooth surfaces from rational bilinear patches. <i>Computer Aided Geometric Design</i> , 2014, 31, 1-12.	0.5	5
76	Geometry and tool motion planning for curvature adapted CNC machining. <i>ACM Transactions on Graphics</i> , 2021, 40, 1-16.	4.9	5
77	Characteristic parameterizations of surfaces with a constant ratio of principal curvatures. <i>Computer Aided Geometric Design</i> , 2022, 93, 102074.	0.5	5
78	Circular arc structures. , 2011, , .		4
79	Smooth polyhedral surfaces. <i>Advances in Mathematics</i> , 2020, 363, 107004.	0.5	2
80	Using isometries for computational design and fabrication. <i>ACM Transactions on Graphics</i> , 2021, 40, 1-12.	4.9	2
81	Computational Mechanical Modelling of Woodâ€™From Microstructural Characteristics Over Wood-Based Products to Advanced Timber Structures. <i>Lecture Notes in Civil Engineering</i> , 2019, , 639-673.	0.3	2
82	Form-finding with polyhedral meshes made simple. , 2015, , .		1
83	GEOMETRIC MOTION DESIGN. <i>Series in Machine Perception and Artificial Intelligence</i> , 1995, , 104-119.	0.1	1
84	Vertex Normals and Face Curvatures of Triangle Meshes. , 2016, , 267-286.		1
85	Freeform Architecture and Discrete Differential Geometry. <i>Lecture Notes in Computer Science</i> , 2017, , 3-8.	1.0	1
86	Discrete geometric structures for architecture. , 2010, , .		0
87	Freeform honeycomb structures and lobel frames. , 2015, , .		0
88	Curved support structures and meshes with spherical vertex stars. , 2018, , .		0
89	Computational design of weingarten surfaces. <i>ACM Transactions on Graphics</i> , 2021, 40, 1-11.	4.9	0