

Mathieu Desbrun

List of Publications by Year in descending order

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148
papers

9,806
citations

76294

40
h-index

58549

82
g-index

152
all docs

152
docs citations

152
times ranked

4184
citing authors

#	ARTICLE	IF	CITATIONS
1	Discrete Differential-Geometry Operators for Triangulated 2-Manifolds. Mathematics and Visualization, 2003, , 35-57.	0.4	1,105
2	Implicit fairing of irregular meshes using diffusion and curvature flow. , 1999, , .		989
3	Intrinsic Parameterizations of Surface Meshes. Computer Graphics Forum, 2002, 21, 209-218.	1.8	465
4	Variational shape approximation. ACM Transactions on Graphics, 2004, 23, 905-914.	4.9	440
5	Anisotropic polygonal remeshing. ACM Transactions on Graphics, 2003, 22, 485-493.	4.9	404
6	Non-iterative, feature-preserving mesh smoothing. ACM Transactions on Graphics, 2003, 22, 943-949.	4.9	297
7	Dynamic real-time deformations using space & time adaptive sampling. , 2001, , .		293
8	Variational tetrahedral meshing. ACM Transactions on Graphics, 2005, 24, 617-625.	4.9	232
9	Generalized Barycentric Coordinates on Irregular Polygons. Journal of Graphics Tools, 2002, 7, 13-22.	0.5	230
10	Smoothed Particles: A new paradigm for animating highly deformable bodies. Eurographics, 1996, , 61-76.	0.4	194
11	Removing excess topology from isosurfaces. ACM Transactions on Graphics, 2004, 23, 190-208.	4.9	186
12	Discrete multiscale vector field decomposition. ACM Transactions on Graphics, 2003, 22, 445-452.	4.9	172
13	Progressive compression for lossless transmission of triangle meshes. , 2001, , .		169
14	Non-iterative, feature-preserving mesh smoothing. , 2003, , .		163
15	Barycentric coordinates for convex sets. Advances in Computational Mathematics, 2007, 27, 319-338.	0.8	155
16	Anisotropic polygonal remeshing. , 2003, , .		154
17	Valence-Driven Connectivity Encoding for 3D Meshes. Computer Graphics Forum, 2001, 20, 480-489.	1.8	151
18	Stable, circulation-preserving, simplicial fluids. ACM Transactions on Graphics, 2007, 26, 4.	4.9	141

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19	Interactive geometry remeshing. ACM Transactions on Graphics, 2002, 21, 347-354.	4.9	130
20	Blue noise through optimal transport. ACM Transactions on Graphics, 2012, 31, 1-11.	4.9	130
21	Variational shape approximation. , 2004, , .		107
22	Design of tangent vector fields. ACM Transactions on Graphics, 2007, 26, 56.	4.9	102
23	Trivial Connections on Discrete Surfaces. Computer Graphics Forum, 2010, 29, 1525-1533.	1.8	99
24	Animating soft substances with implicit surfaces. , 1995, , .		96
25	Spectral Conformal Parameterization. Computer Graphics Forum, 2008, 27, 1487-1494.	1.8	90
26	Energy-preserving integrators for fluid animation. ACM Transactions on Graphics, 2009, 28, 1-8.	4.9	89
27	Interleaving Delaunay refinement and optimization for practical isotropic tetrahedron mesh generation. ACM Transactions on Graphics, 2009, 28, 1-9.	4.9	89
28	Numerical coarsening of inhomogeneous elastic materials. ACM Transactions on Graphics, 2009, 28, 1-8.	4.9	88
29	$\hat{\mu}_1$ -Based Construction of Polycube Maps from Complex Shapes. ACM Transactions on Graphics, 2014, 33, 1-11.	4.9	81
30	Near-Optimal Connectivity Encoding of 2-Manifold Polygon Meshes. Graphical Models, 2002, 64, 147-168.	1.1	74
31	Signing the Unsigned: Robust Surface Reconstruction from Raw Pointsets. Computer Graphics Forum, 2010, 29, 1733-1741.	1.8	74
32	Mesh quilting for geometric texture synthesis. ACM Transactions on Graphics, 2006, 25, 690-697.	4.9	73
33	Interactive animation of cloth-like objects in virtual reality. Computer Animation and Virtual Worlds, 2001, 12, 1-12.	0.9	72
34	Discrete Differential Forms for Computational Modeling. , 2008, , 287-324.		70
35	Digital geometry processing with discrete exterior calculus. , 2013, , .		68
36	On the equilibrium of simplicial masonry structures. ACM Transactions on Graphics, 2013, 32, 1-10.	4.9	65

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37	TextureMontage. ACM Transactions on Graphics, 2005, 24, 1148-1155.	4.9	63
38	Mesh puppetry. ACM Transactions on Graphics, 2007, 26, 81.	4.9	62
39	Discrete differential forms for computational modeling. , 2006, , .		60
40	Variational Integrators for Maxwell's Equations with Sources. Progress in Electromagnetics Research Symposium: [proceedings] Progress in Electromagnetics Research Symposium, 2008, 4, 711-715.	0.4	59
41	An Optimal Transport Approach to Robust Reconstruction and Simplification of 2D Shapes. Computer Graphics Forum, 2011, 30, 1593-1602.	1.8	58
42	Power particles. ACM Transactions on Graphics, 2015, 34, 1-11.	4.9	58
43	Semi-regular mesh extraction from volumes. , 0, , .		56
44	Lie group integrators for animation and control of vehicles. ACM Transactions on Graphics, 2009, 28, 1-14.	4.9	56
45	On the geometric character of stress in continuum mechanics. Zeitschrift Fur Angewandte Mathematik Und Physik, 2007, 58, 843-856.	0.7	52
46	Interactive Shape Interpolation through Controllable Dynamic Deformation. IEEE Transactions on Visualization and Computer Graphics, 2011, 17, 983-992.	2.9	51
47	HOT. ACM Transactions on Graphics, 2011, 30, 1-12.	4.9	48
48	Space-time editing of elastic motion through material optimization and reduction. ACM Transactions on Graphics, 2014, 33, 1-10.	4.9	48
49	Angle-Analyzer: A Triangle-Quad Mesh Codec. Computer Graphics Forum, 2002, 21, 383-392.	1.8	44
50	Deformation Transfer to Multi-Component Objects. Computer Graphics Forum, 2010, 29, 319-325.	1.8	44
51	Haptic rendering-beyond visual computing - A haptic-rendering technique based on hybrid surface representation. IEEE Computer Graphics and Applications, 2004, 24, 66-75.	1.0	43
52	Feature-Preserving Surface Reconstruction and Simplification from Defect-Laden Point Sets. Journal of Mathematical Imaging and Vision, 2014, 48, 369-382.	0.8	43
53	Operator-adapted wavelets for finite-element differential forms. Journal of Computational Physics, 2019, 388, 144-177.	1.9	42
54	Interactive multiresolution animation of deformable models. Eurographics, 1999, , 133-144.	0.4	42

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55	Edge subdivision schemes and the construction of smooth vector fields. ACM Transactions on Graphics, 2006, 25, 1041-1048.	4.9	40
56	Fast tile-based adaptive sampling with user-specified Fourier spectra. ACM Transactions on Graphics, 2014, 33, 1-11.	4.9	39
57	Model-reduced variational fluid simulation. ACM Transactions on Graphics, 2015, 34, 1-12.	4.9	39
58	Adaptive simulation of soft bodies in real-time. , 0, , .		38
59	Example-based dynamic skinning in real time. ACM Transactions on Graphics, 2008, 27, 1-8.	4.9	38
60	Subdivision exterior calculus for geometry processing. ACM Transactions on Graphics, 2016, 35, 1-11.	4.9	36
61	Variance-minimizing transport plans for inter-surface mapping. ACM Transactions on Graphics, 2017, 36, 1-14.	4.9	34
62	Discrete geometric mechanics for variational time integrators. , 2006, , .		33
63	An implicit-based haptic rendering technique. , 0, , .		32
64	Design of tangent vector fields. , 2007, , .		31
65	Quadrangulation through morse-parameterization hybridization. ACM Transactions on Graphics, 2018, 37, 1-15.	4.9	31
66	A variational approach to Eulerian geometry processing. ACM Transactions on Graphics, 2007, 26, 66.	4.9	30
67	Frame field generation through metric customization. ACM Transactions on Graphics, 2015, 34, 1-11.	4.9	29
68	Curved optimal delaunay triangulation. ACM Transactions on Graphics, 2018, 37, 1-16.	4.9	29
69	Adaptive Sampling of Implicit Surfaces for Interactive Modelling and Animation. Computer Graphics Forum, 1996, 15, 319-325.	1.8	27
70	Learning controls for blend shape based realistic facial animation. , 2006, , .		27
71	Weighted Triangulations for Geometry Processing. ACM Transactions on Graphics, 2014, 33, 1-13.	4.9	27
72	Exoskeleton: Curve network abstraction for 3D shapes. Computers and Graphics, 2011, 35, 112-121.	1.4	26

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73	Discrete Connection and Covariant Derivative for Vector Field Analysis and Design. ACM Transactions on Graphics, 2016, 35, 1-17.	4.9	26
74	Vector field processing on triangle meshes. , 2016, , .		25
75	Discrete 2-tensor Fields on Triangulations. Computer Graphics Forum, 2014, 33, 13-24.	1.8	24
76	Numerical coarsening using discontinuous shape functions. ACM Transactions on Graphics, 2018, 37, 1-12.	4.9	24
77	Progressive encoding of complex isosurfaces. , 2003, , .		23
78	Fast and scalable turbulent flow simulation with two-way coupling. ACM Transactions on Graphics, 2020, 39, .	4.9	23
79	Discrete differential forms for computational modeling. , 2005, , .		22
80	Variational tetrahedral meshing. , 2005, , .		22
81	Geometric Computational Electrodynamics with Variational Integrators and Discrete Differential Forms. Fields Institute Communications, 2015, , 437-475.	0.6	22
82	Unconstrained spherical parameterization. , 2005, , .		21
83	Progressive encoding of complex isosurfaces. ACM Transactions on Graphics, 2003, 22, 471-476.	4.9	20
84	Planar Shape Detection at Structural Scales. , 2018, , .		20
85	Meshes on Fire. Eurographics, 2001, , 75-84.	0.4	19
86	Discrete Poincaré lemma. Applied Numerical Mathematics, 2005, 53, 231-248.	1.2	18
87	Mesh quilting for geometric texture synthesis. , 2006, , .		18
88	Unconstrained Spherical Parameterization. Journal of Graphics Tools, 2007, 12, 17-26.	0.5	18
89	Discrete differential operators on polygonal meshes. ACM Transactions on Graphics, 2020, 39, .	4.9	16
90	Discrete exterior calculus for variational problems in computer vision and graphics. , 0, , .		15

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91	Symmetry and Orbit Detection via Lie-Algebra Voting. Computer Graphics Forum, 2016, 35, 217-227.	1.8	15
92	Power coordinates. ACM Transactions on Graphics, 2016, 35, 1-11.	4.9	15
93	Fast and versatile fluid-solid coupling for turbulent flow simulation. ACM Transactions on Graphics, 2021, 40, 1-18.	4.9	14
94	Material-adapted refinable basis functions for elasticity simulation. ACM Transactions on Graphics, 2019, 38, 1-15.	4.9	13
95	Vector field processing on triangle meshes. , 2015, , .		12
96	3D hodge decompositions of edge- and face-based vector fields. ACM Transactions on Graphics, 2019, 38, 1-13.	4.9	12
97	Learning controls for blend shape based realistic facial animation. , 2005, , .		11
98	A variational approach to Eulerian geometry processing. , 2007, , .		10
99	Discrete Differential Geometry. Computer Aided Geometric Design, 2007, 24, 427.	0.5	10
100	Numerical coarsening of inhomogeneous elastic materials. , 2009, , .		10
101	A semi-analytical approach to molecular dynamics. Journal of Computational Physics, 2015, 303, 336-354.	1.9	10
102	Optimal voronoi tessellations with hessian-based anisotropy. ACM Transactions on Graphics, 2016, 35, 1-12.	4.9	10
103	Discrete differential forms for computational modeling. , 2008, , .		10
104	Variational tetrahedral meshing. , 2005, , .		9
105	HOT. , 2011, , .		9
106	Interactive elastic motion editing through space-time position constraints. Computer Animation and Virtual Worlds, 2013, 24, 409-417.	0.7	9
107	The chain collocation method: A spectrally accurate calculus of forms. Journal of Computational Physics, 2014, 257, 1352-1372.	1.9	9
108	Parallel Transport Unfolding: A Connection-Based Manifold Learning Approach. SIAM Journal on Applied Algebra and Geometry, 2019, 3, 266-291.	0.9	9

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109	Kinetic-Based Multiphase Flow Simulation. IEEE Transactions on Visualization and Computer Graphics, 2021, 27, 3318-3334.	2.9	9
110	Multiscale Cholesky preconditioning for ill-conditioned problems. ACM Transactions on Graphics, 2021, 40, 1-13.	4.9	9
111	Dynamic Upsampling of Smoke through Dictionary-based Learning. ACM Transactions on Graphics, 2021, 40, 1-19.	4.9	8
112	Sliced optimal transport sampling. ACM Transactions on Graphics, 2020, 39, .	4.9	8
113	Stable, circulation-preserving, simplicial fluids. , 2006, , .		7
114	On the coupling between an ideal fluid and immersed particles. Physica D: Nonlinear Phenomena, 2013, 265, 40-56.	1.3	7
115	A constructive theory of sampling for image synthesis using reproducing Kernel bases. ACM Transactions on Graphics, 2014, 33, 1-14.	4.9	7
116	Spectral Affine Kernel Embeddings. Computer Graphics Forum, 2017, 36, 117-129.	1.8	7
117	Simulating Landslides for Natural Disaster Prevention. Eurographics, 1999, , 1-12.	0.4	7
118	A Discrete Geometric Optimal Control Framework for Systems with Symmetries. , 0, , .		7
119	TextureMontage. , 2005, , .		6
120	Example-based dynamic skinning in real time. , 2008, , .		6
121	Laplacian-optimized diffusion for semi-supervised learning. Computer Aided Geometric Design, 2020, 79, 101864.	0.5	6
122	Predicting high-resolution turbulence details in space and time. ACM Transactions on Graphics, 2021, 40, 1-16.	4.9	6
123	Discrete, vorticity-preserving, and stable simplicial fluids. , 2005, , .		5
124	Discrete differential forms and applications to surface tiling. , 2006, , .		5
125	Interleaving Delaunay refinement and optimization for practical isotropic tetrahedron mesh generation. , 2009, , .		5
126	Tightening the Precision of Perspective Rendering. Journal of Graphics Tools, 2012, 16, 40-56.	0.3	5

#	ARTICLE	IF	CITATIONS
127	A multisymplectic integrator for elastodynamic frictionless impact problems. Computer Methods in Applied Mechanics and Engineering, 2017, 315, 1025-1052.	3.4	5
128	R-Adaptive Multisymplectic and Variational Integrators. Mathematics, 2019, 7, 642.	1.1	5
129	Variational Partitioned Runge-Kutta Methods for Lagrangians Linear in Velocities. Mathematics, 2019, 7, 861.	1.1	5
130	Variational discretization for rotating stratified fluids. Discrete and Continuous Dynamical Systems, 2013, 34, 477-509.	0.5	5
131	Large-Scale DTM Generation From Satellite Data. , 2019, , .		5
132	Haptic editing of decoration and material properties. , 0, , .		4
133	Height and Tilt Geometric Texture. Lecture Notes in Computer Science, 2009, , 656-667.	1.0	4
134	Parametrization of Generalized Primal-Dual Triangulations. , 2011, , 237-253.		4
135	Discrete geometric mechanics for variational time integrators. , 2008, , .		4
136	Edge subdivision schemes and the construction of smooth vector fields. , 2006, , .		3
137	Material coherence from trajectories via Burau eigenanalysis of braids. Chaos, 2020, 30, 033122.	1.0	3
138	Applied Geometry:Discrete Differential Calculus for Graphics. Computer Graphics Forum, 2004, 23, 269-269.	1.8	2
139	Generalized Barycentric Coordinates on Irregular Polygons. , 2005, , 59-69.		2
140	Q-zip. ACM Transactions on Graphics, 2021, 40, 1-13.	4.9	2
141	Processing irregular meshes. , 0, , .		1
142	Third Eurographics Symposium on Geometry Processing (in cooperation with ACM SIGGRAPH).. Computer Graphics Forum, 2006, 25, 257-257.	1.8	1
143	Stable, circulation-preserving, simplicial fluids. , 2008, , .		1
144	ACM/EG Symposium on Computer Animation 2004. Computer Graphics Forum, 2004, 23, 841-841.	1.8	0

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145	Multiscale cholesky preconditioning for ill-conditioned problems. ACM Transactions on Graphics, 2021, 40, 1-13.	4.9	0
146	Volume-controlled surface fairing. , 2007, , .		0
147	Remembering Jerry Marsden (1942-2010). Notices of the American Mathematical Society, 2012, 59, 758.	0.1	0
148	Time-Varying Surface Reconstruction of an Actor's Performance. Lecture Notes in Computer Science, 2015, , 92-101.	1.0	0