

# Peter C Doerschuk

## List of Publications by Year in descending order

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103  
papers

1,090  
citations

516215

16  
h-index

433756

31  
g-index

105  
all docs

105  
docs citations

105  
times ranked

1171  
citing authors

#	ARTICLE	IF	CITATIONS
1	Upper Extremity Limb Function Discrimination Using EMG Signal Analysis. IEEE Transactions on Biomedical Engineering, 1983, BME-30, 18-29.	2.5	149
2	In vivo two-photon excited fluorescence microscopy reveals cardiac- and respiration-dependent pulsatile blood flow in cortical blood vessels in mice. American Journal of Physiology - Heart and Circulatory Physiology, 2012, 302, H1367-H1377.	1.5	129
3	Self-assembly of highly symmetrical, ultrasmall inorganic cages directed by surfactant micelles. Nature, 2018, 558, 577-580.	13.7	86
4	An Introduction to Maximum-Likelihood Methods in Cryo-EM. Methods in Enzymology, 2010, 482, 263-294.	0.4	65
5	In Vivo Assembly of an Archaeal Virus Studied with Whole-Cell Electron Cryotomography. Structure, 2010, 18, 1579-1586.	1.6	60
6	Ab initio reconstruction and experimental design for cryo electron microscopy. IEEE Transactions on Information Theory, 2000, 46, 1714-1729.	1.5	59
7	A statistical approach to computer processing of cryo-electron microscope images: virion classification and 3-D reconstruction. Journal of Structural Biology, 2003, 144, 24-50.	1.3	49
8	Physiologically Based Pharmacokinetic (PBPK) Models for Ethanol. IEEE Transactions on Biomedical Engineering, 2008, 55, 2691-2700.	2.5	45
9	Dynamics in cryo EM reconstructions visualized with maximum-likelihood derived variance maps. Journal of Structural Biology, 2013, 181, 195-206.	1.3	43
10	Determination of three-dimensional low-resolution viral structure from solution x-ray scattering data. Biophysical Journal, 1995, 69, 619-639.	0.2	31
11	Explicit Computation of Orthonormal Symmetrized Harmonics with Application to the Identity Representation of the Icosahedral Group. SIAM Journal on Mathematical Analysis, 2000, 32, 538-554.	0.9	30
12	Virus Assembly and Maturation: Auto-Regulation through Allosteric Molecular Switches. Journal of Molecular Biology, 2013, 425, 1488-1496.	2.0	29
13	Anticipatory Posturing of the Vocal Tract Reveals Dissociation of Speech Movement Plans from Linguistic Units. PLoS ONE, 2016, 11, e0146813.	1.1	24
14	An ab Initio Algorithm for Low-Resolution 3-D Reconstructions from Cryoelectron Microscopy Images. Journal of Structural Biology, 2001, 133, 132-142.	1.3	21
15	Application of Multiresolution Pattern Classification to Steel Bridge Coating Assessment. Journal of Computing in Civil Engineering, 2002, 16, 244-251.	2.5	19
16	Three-dimensional reconstruction of the statistics of heterogeneous objects from a collection of one projection image of each object. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 2012, 29, 959.	0.8	18
17	Alcohol Exposure Rate Control Through Physiologically Based Pharmacokinetic Modeling. Alcoholism: Clinical and Experimental Research, 2012, 36, 1042-1049.	1.4	16
18	Ab initio maximum likelihood reconstruction from cryo electron microscopy images of an infectious virion of the tailed bacteriophage P22 and maximum likelihood versions of Fourier Shell Correlation appropriate for measuring resolution of spherical or cylindrical objects. Journal of Structural Biology, 2009, 167, 185-199.	1.3	15

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19	Exact Reduced-Complexity Maximum Likelihood Reconstruction of Multiple 3-D Objects From Unlabeled Unoriented 2-D Projections and Electron Microscopy of Viruses. IEEE Transactions on Image Processing, 2007, 16, 2865-2878.	6.0	14
20	Dynamic and geometric analyses of <i>Nudaurelia capensis</i> virus maturation reveal the energy landscape of particle transitions. Journal of Molecular Recognition, 2014, 27, 230-237.	1.1	14
21	Virus particle dynamics derived from CryoEM studies. Current Opinion in Virology, 2016, 18, 57-63.	2.6	14
22	Symbolic symmetry verification for harmonic functions invariant under polyhedral symmetries. Computers in Physics, 1995, 9, 433.	0.6	13
23	The mechanism of high-pressure-induced ordering in a macromolecular crystal. Acta Crystallographica Section D: Biological Crystallography, 2005, 61, 737-743.	2.5	11
24	Bayesian signal reconstruction, Markov random fields, and x-ray crystallography. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1991, 8, 1207.	0.8	8
25	Experimentally constrained circuit model of cortical arteriole networks for understanding flow redistribution due to occlusion and neural activation. Journal of Cerebral Blood Flow and Metabolism, 2018, 38, 38-44.	2.4	8
26	Adaptive Bayesian signal reconstruction with a priori model implementation and synthetic examples for x-ray crystallography. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1991, 8, 1222.	0.8	7
27	Iterative reconstruction of three-dimensional objects from averaged Fourier-transform magnitude: solution and fiber x-ray scattering problems. Journal of the Optical Society of America A: Optics and Image Science, and Vision, 1996, 13, 1483.	0.8	7
28	Effect of the viral protease on the dynamics of bacteriophage HK97 maturation intermediates characterized by variance analysis of cryo EM particle ensembles. Journal of Structural Biology, 2016, 193, 188-195.	1.3	7
29	Initial Validation for the Estimation of Resting-State fMRI Effective Connectivity by a Generalization of the Correlation Approach. Frontiers in Neuroscience, 2017, 11, 271.	1.4	7
30	Ordinary differential equation models for ethanol pharmacokinetic based on anatomy and physiology. , 2006, 2006, 5033-6.		6
31	A parallel software toolkit for statistical 3-D virus reconstructions from cryo electron microscopy images using computer clusters with multi-core shared-memory nodes. Parallel and Distributed Processing Symposium (IPDPS), Proceedings of the International Conference on, 2008, , .	1.0	6
32	Estimating brain microvascular blood flows from partial two-photon microscopy data by computation with a circuit model. , 2011, 2011, 174-7.		6
33	In vivo virus structures: Simultaneous classification, resolution enhancement, and noise reduction in whole-cell electron tomography. Journal of Structural Biology, 2011, 174, 425-433.	1.3	6
34	Multiclass Maximum-Likelihood Symmetry Determination and Motif Reconstruction of 3-D Helical Objects From Projection Images for Electron Microscopy. IEEE Transactions on Image Processing, 2011, 20, 1962-1976.	6.0	5
35	Allosteric effects in bacteriophage HK97 procapsids revealed directly from covariance analysis of cryo EM data. Journal of Structural Biology, 2018, 202, 129-141.	1.3	5
36	Modelling electrocardiograms using interacting Markov chains. International Journal of Systems Science, 1990, 21, 257-283.	3.7	4

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37	Symmetry-constrained 3-D interpolation of viral X-ray crystallography data. IEEE Transactions on Signal Processing, 2000, 48, 214-222.	3.2	4
38	Reciprocal space representations of helical objects and their projection images for helices constructed from motifs without spherical symmetry. Ultramicroscopy, 2009, 109, 253-263.	0.8	4
39	Learning Compositional Visual Concepts with Mutual Consistency. , 2018, , .		4
40	Spatiotemporal functional interactivity among large-scale brain networks. NeuroImage, 2021, 227, 117628.	2.1	4
41	Event-based estimation of interacting Markov chains with applications to electrocardiogram analysis. International Journal of Systems Science, 1990, 21, 285-304.	3.7	3
42	<title>Reconstruction of color images from a single-chip CCD sensor based on Markov random field models</title>. , 1995, , .		3
43	Reconstruction for stochastic 3-D signals with symmetric statistics in noise: Electron microscopy of virus particles. , 2015, , .		3
44	Detecting asymmetry in the presence of symmetry with maximum likelihood three-dimensional reconstructions of viruses from electron microscope images. IET Image Processing, 2016, 10, 624-629.	1.4	3
45	Statistical characterization of ensembles of symmetric virus particles: 3-D stochastic signal reconstruction from electron microscope images. , 2016, 2016, 3977-3980.		3
46	Theory and application of annealing algorithms for continuous optimization. , 1992, , .		2
47	Texture-based segmentation using markov random field models and approximate Bayesian estimators based on trees. Journal of Mathematical Imaging and Vision, 1995, 5, 277-286.	0.8	2
48	Models and Signal Processing for an Implanted Ethanol Bio-Sensor. IEEE Transactions on Biomedical Engineering, 2008, 55, 603-613.	2.5	2
49	3-D understanding of electron microscopy images of nano bio objects by computing generative mechanical models. , 2016, , .		2
50	Determination of Helical Symmetry Parameters from Cryo Electron Microscopy Images and Applications to Virus Structure*. , 2007, , .		2
51	Computation of Real-Valued Basis Functions which Transform as Irreducible Representations of the Polyhedral Groups. SIAM Journal of Scientific Computing, 2021, 43, A3657-A3676.	1.3	2
52	<title>Texture-based segmentation using Markov random field models</title>. , 1994, , .		1
53	<title>Hidden Markov model for the detection and tracking of highway vehicles in image sequences</title>. , 1996, 2847, 234.		1
54	3D image reconstruction algorithms for cryo-electron-microscopy images of virus particles. , 2000, 4123, 231.		1

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55	Maximum likelihood 3D reconstruction of multiple viruses from mixtures of cryo electron microscope images. , 2005, , .		1
56	<title>A fast algorithm for 3D reconstruction from unoriented projections and cryo electron microscopy of viruses</title>. , 2006, , .		1
57	3D signal reconstruction from noisy projection data for stochastic objects as a generalization of Gaussian mixture parameter estimation. Proceedings of SPIE, 2010, , .	0.8	1
58	Understanding stochastic biological macromolecular complexes by estimating a mechanical model via statistical mechanics from cryo electron microscopy images. Proceedings of SPIE, 2010, , .	0.8	1
59	Understanding dynamics of biological macromolecular complexes by estimating a mechanical model via statistical mechanics from cryo electron microscopy images. , 2011, , .		1
60	Reconstruction of Stochastic 3D Signals With Symmetric Statistics From 2D Projection Images Motivated by Cryo-Electron Microscopy. IEEE Transactions on Image Processing, 2019, 28, 5479-5494.	6.0	1
61	Ordinary differential equation models for ethanol pharmacokinetic based on anatomy and physiology. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2006, , .	0.5	1
62	Laser-Induced Graphene Pressure Sensors Manufactured via Inkjet PCB Printer : Locally Producing Super-Sensitive and Cost-Effective Circular Diaphragm Pressure Gauges. , 2022, , .		1
63	Estimation-based approaches to rhythm analysis in electrocardiograms. , 1985, , 295-313.		0
64	Modeling of cardiac rhythms. Journal of Electrocardiology, 1990, 23, 102-110.	0.4	0
65	<title>Bayesian signal reconstruction from Fourier transform magnitude and x-ray crystallography</title>. , 1991, , .		0
66	<title>Bayesian signal reconstruction from Fourier-transform magnitude and x-ray crystallography</title>. , 1992, , .		0
67	<title>Continuous-state simulated annealing algorithms: theory and application</title>. , 1992, 1766, 235.		0
68	<title>Cluster approximations for statistical image processing</title>. , 1993, , .		0
69	<title>Computational x-ray crystallography as a signal recovery problem</title>. , 1993, , .		0
70	<title>Reconstruction of viruses from solution x-ray scattering data</title>. , 1995, , .		0
71	<title>Simultaneous restoration and segmentation using cluster approximations to Markov random fields</title>. , 1995, 2568, 168.		0
72	<title>Optimization approach to 3D reconstruction from solution x-ray scattering data</title>. , 1996, , .		0

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73	<title>Statistical methods for 3D reconstruction of viruses using cryo electron microscopy data</title>. , 1998, 3459, 12.		0
74	Robustness of 3-D maximum likelihood reconstructions of viruses from cryo electron microscope images. , 2002, , .		0
75	Computational 3D reconstructions by optimization for cryo-electron microscopy. , 2003, , .		0
76	Evaluating Estimates of Markov Models of Sequence Evolution through Simulation. , 2005, 2006, 808-12.		0
77	Model-based 3-D Reconstructions for the Structural Biology of Viruses Exhibiting Incompatible Symmetries. , 2006, , .		0
78	<title>3D reconstructions from spherically averaged Fourier transform magnitude and solution x-ray scattering experiments</title>. , 2006, 6065, 116.		0
79	Computing the 3-D structure of viruses from unoriented cryo electron microscope images: a fast algorithm for a statistical approach. , 2006, 2006, 2538-41.		0
80	Statistical Signal processing for an implantable ethanol biosensor. , 2006, 2006, 3704-7.		0
81	3-D Reconstructions of Tailed Bacteriophages from CYRO Electron Microscopy Images. , 2006, , .		0
82	Image reconstruction in electron microscopy. Proceedings of SPIE, 2008, , .	0.8	0
83	Special purpose 3-D reconstruction and restoration algorithms for electron microscopy of nanoscale objects and an enabling software toolkit. , 2009, , .		0
84	Algorithms for sorting and reconstructing heterogeneous nanoscale biological objects from cryo electron microscopy images. , 2009, , .		0
85	3-D reconstructions of nanometer-scale helical objects from cryo electron microscopy images. , 2009, , .		0
86	Classification of cryo electron microscopy images, noisy tomographic images recorded with unknown projection directions, by simultaneously estimating reconstructions and application to an assembly mutant of Cowpea Chlorotic Mottle Virus and portals of the bacteriophage P22. , 2010, , .		0
87	Inverse problems for cryo electron microscopy of viruses: randomly oriented projection images of random 3D structures in noise. Proceedings of SPIE, 2011, , .	0.8	0
88	Stochastic 3-D signal reconstruction from noisy projection data for heterogeneous instances of objects in electron microscopy imagery. , 2011, , .		0
89	System identification to characterize human use of ethanol based on generative point-process models of video games with ethanol rewards. , 2011, 2011, 2699-702.		0
90	Highly scalable methods for exploiting a label with unknown location in order to orient a set of single-particle cryo electron microscopy images. , 2012, , .		0

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91	3D reconstruction based on single-particle cryo electron microscopy images as a random signal in noise problem. , 2012, , .		0
92	Describing the structure of a macro molecular complex as a random Signal in noise and a maximum likelihood reconstruction. , 2012, , .		0
93	Determining fluctuation in bio-nanomachines from electron microscopy images. , 2015, , .		0
94	A mathematical model relating cortical oxygenated and deoxygenated hemoglobin flows and volumes to neural activity. Journal of Neural Engineering, 2015, 12, 046013.	1.8	0
95	Characterizing heterogeneity among virus particles by stochastic 3D signal reconstruction. , 2015, , .		0
96	3-D image reconstruction for bio nanomachines with helical symmetry: Image formation theory. , 2015, , .		0
97	3D Virus Structures from Model-Based Inverse Problems. Kluwer International Series in Engineering and Computer Science, 2000, , 287-300.	0.2	0
98	3-D reconstructions from cryo electron microscope images: an ab initio algorithm. , 2001, , .		0
99	Computing the 3-D structure of viruses from electron microscope images. , 2005, , .		0
100	Simultaneous 3-D Image Reconstruction and Classification with Applications to Structural Virology*. , 2007, , .		0
101	3-D statistical characterization of the heterogeneity of biological macromolecular complexes by electron microscopy. , 2014, , .		0
102	Computing the 3-D structure of viruses from unoriented cryo electron microscope images: a fast algorithm for a statistical approach. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2006, , .	0.5	0
103	Statistical Signal processing for an implantable ethanol biosensor. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2006, , .	0.5	0