Takumi Washio

List of Publications by Year
in descending order

77 papers	1,220 citations	361413 20 h-index	395702 33 g-index
80 all docs	80 docs citations	80 times ranked	1055 citing authors

#	Article	IF	Citations
1	UT-Heart: A Finite Element Model Designed for the Multiscale and Multiphysics Integration of our Knowledge on the Human Heart. Methods in Molecular Biology, 2022, , 221-245.	0.9	3
2	Using incomplete Cholesky factorization to increase the time step in molecular dynamics simulations. Journal of Computational and Applied Mathematics, 2022, 415, 114519.	2.0	1
3	Chloroquine and hydroxychloroquine provoke arrhythmias at concentrations higher than those clinically used to treat COVIDâ€19: A simulation study. Clinical and Translational Science, 2021, 14, 1092-1100.	3.1	9
4	An application of a patient-specific cardiac simulator for the prediction of outcomes after mitral valve replacement: a pilot study. Journal of Artificial Organs, 2021, 24, 351-357.	0.9	1
5	A reverse stroke characterizes the force generation of cardiac myofilaments, leading to an understanding of heart function. Proceedings of the National Academy of Sciences of the United States of America, 2021, 118, .	7.1	16
6	A Multiple Step Active Stiffness Integration Scheme to Couple a Stochastic Cross-Bridge Model and Continuum Mechanics for Uses in Both Basic Research and Clinical Applications of Heart Simulation. Frontiers in Physiology, 2021, 12, 712816.	2.8	6
7	Semi-Implicit Time Integration with Hessian Eigenvalue Corrections for a Larger Time Step in Molecular Dynamics Simulations. Journal of Chemical Theory and Computation, 2021, 17, 5792-5804.	5.3	2
8	Ionic mechanisms of ST segment elevation in electrocardiogram during acute myocardial infarction. Journal of Physiological Sciences, 2020, 70, 36.	2.1	10
9	Mechanism of contraction rhythm homeostasis for hyperthermal sarcomeric oscillations of neonatal cardiomyocytes. Scientific Reports, 2020, 10, 20468.	3.3	8
10	Using Systolic Local Mechanical Load to Predict Fiber Orientation in Ventricles. Frontiers in Physiology, 2020, 11, 467.	2.8	6
11	Personalized Perioperative Multi-scale, Multi-physics Heart Simulation of Double Outlet Right Ventricle. Annals of Biomedical Engineering, 2020, 48, 1740-1750.	2.5	14
12	Patient-specific heart simulation can identify non-responders to cardiac resynchronization therapy. Heart and Vessels, 2020, 35, 1135-1147.	1.2	10
13	Abstract 13732: Evaluation of the Mechanical Effect of Thickened IPS Derived Cardiomyocyte Patch on the Distressed Left Ventricle Using Cardiac Simulator â€œUt-heartâ€. Circulation, 2020, 142, .	1.6	0
14	Effect of myofibril passive elastic properties on the mechanical communication between motor proteins on adjacent sarcomeres. Scientific Reports, 2019, 9, 9355.	3.3	8
15	Longitudinal dissociation and transition in thickness of the Hisâ€Purkinje system cause various QRS waveforms of surface ECG under His bundle pacing: A simulation study based on clinical observations. Journal of Cardiovascular Electrophysiology, 2019, 30, 2582-2590.	1.7	4
16	Clinical and pharmacological application of multiscale multiphysics heart simulator, UT-Heart. Korean Journal of Physiology and Pharmacology, 2019, 23, 295.	1.2	5
17	Proposed mechanism for the length dependence of the force developed in maximally activated muscles. Scientific Reports, 2019, 9, 1317.	3.3	12
18	Absence of Rapid Propagation through the Purkinje Network as a Potential Cause of Line Block in the Human Heart with Left Bundle Branch Block. Frontiers in Physiology, 2018, 9, 56.	2.8	1

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19	Coupling Langevin Dynamics With Continuum Mechanics: Exposing the Role of Sarcomere Stretch Activation Mechanisms to Cardiac Function. Frontiers in Physiology, 2018, 9, 333.	2.8	10
20	Arrhythmic hazard map for a <scp>3D</scp> wholeâ€ventricle model under multiple ion channel block. British Journal of Pharmacology, 2018, 175, 3435-3452.	5.4	21
21	Recent Advances in the Computer Simulation of Heart. The Journal of the Japanese Society of Internal Medicine, 2018, 107, 2532-2538.	0.0	0
22	Analysis of spontaneous oscillations for a three-state power-stroke model. Physical Review E, 2017, 95, 022411.	2.1	11
23	Molecular Mechanism of Synchronous Force Generations among Myosin Molecules. Biophysical Journal, 2017, 112, 263a.	0.5	0
24	Multi-scale, tailor-made heart simulation can predict the effect of cardiac resynchronization therapy. Journal of Molecular and Cellular Cardiology, 2017, 108, 17-23.	1.9	46
25	Titin-mediated thick filament activation, through a mechanosensing mechanism, introduces sarcomere-length dependencies in mathematical models of rat trabecula and whole ventricle. Scientific Reports, 2017, 7, 5546.	3.3	20
26	Coordinated force generation of skeletal myosins in myofilaments through motor coupling. Nature Communications, 2017, 8, 16036.	12.8	55
27	Deformable regions of interest with multiple points for tissue tracking in echocardiography. Medical Image Analysis, 2017, 35, 554-569.	11.6	5
28	Including Thermal Fluctuations in Actomyosin Stable States Increases the Predicted Force per Motor and Macroscopic Efficiency in Muscle Modelling. PLoS Computational Biology, 2016, 12, e1005083.	3.2	20
29	Ventricular fiber optimization utilizing the branching structure. International Journal for Numerical Methods in Biomedical Engineering, 2016, 32, e02753.	2.1	21
30	Oscillatory Behavior in Muscle Myosin. Biophysical Journal, 2016, 110, 463a.	0.5	0
31	Mechanism of Cooperative Force Generations between Skeletal Myosins. Biophysical Journal, 2016, 110, 614a.	0.5	0
32	Tailor-made heart simulation predicts the effect of cardiac resynchronization therapy in a canine model of heart failure. Medical Image Analysis, 2016, 31, 46-62.	11.6	20
33	Cardiac safety assessment of drugs using three-dimensional heart simulator. Journal of Pharmacological and Toxicological Methods, 2016, 81, 351.	0.7	0
34	Intermolecular Cooperativity of Skeletal Myosins Enhances Force Output in Myofilaments. Biophysical Journal, 2015, 108, 338a.	0.5	0
35	An integrated finite element simulation of cardiomyocyte function based on triphasic theory. Frontiers in Physiology, 2015, 6, 287.	2.8	9
36	Distinct Functional Roles of Cardiac Mitochondrial Subpopulations Revealed by a 3D Simulation Model. Biophysical Journal, 2015, 108, 2732-2739.	0.5	17

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37	From Molecule to Organ: A Multiscale Simulator of Heart Contraction. Biophysical Journal, 2015, 108, 443a.	0.5	1
38	Screening system for drug-induced arrhythmogenic risk combining a patch clamp and heart simulator. Science Advances, 2015, 1, e1400142.	10.3	87
39	Integrated 3D Simulation of Cardiomyocyte Revealed the Distinct Functional Characteristics between Subsarcolemmal and Interfibrillar Mitochondria. Biophysical Journal, 2014, 106, 643a.	0.5	0
40	Multiscale Heart Simulation with Cooperative Stochastic Cross-Bridge Dynamics and Cellular Structures. Multiscale Modeling and Simulation, 2013, 11, 965-999.	1.6	47
41	Patient Specific Simulation of Body Surface ECG using the Finite Element Method. PACE - Pacing and Clinical Electrophysiology, 2013, 36, 309-321.	1.2	32
42	Mitochondrial Colocalization with Ca2+ Release Sites is Crucial to Cardiac Metabolism. Biophysical Journal, 2013, 104, 496-504.	0.5	19
43	Tailor-made Medicine Using the Multi-scale Heart Simulator â€œUT-Heartâ€• Journal of Cardiac Failure, 2013, 19, S107.	1.7	0
44	3SDA-05 A numerical model of cross-bridge cycling and its application to a beating human heart(3SDA) Tj ETQq0 0 0 rgBT /Overlock 10	0.1	0
45	A Study on Large Scale Analysis of Cardiomyocyte Coupling Electrical, Chemical and Mechanical Phenomena Based on Triphasic Theory. Nihon Kikai Gakkai Ronbunshu, A Hen/Transactions of the Japan Society of Mechanical Engineers, Part A, 2013, 79, 934-949.	0.2	1
46	Multi-scale Multi-physics Heart Simulator UT-Heart. Journal of the Society of Mechanical Engineers, 2013, 116, 74-77.	0.0	0
47	OS1012 Multi-physics Analysis of Intra-cardiomyocyte Phenomena Based on Triphasic Theory. The Proceedings of the Materials and Mechanics Conference, 2013, 2013, _OS1012-1_-_OS1012-3_.	0.0	0
48	Multi-scale simulations of cardiac electrophysiology and mechanics using the University of Tokyo heart simulator. Progress in Biophysics and Molecular Biology, 2012, 110, 380-389.	2.9	83
49	A 3D Integrated Model of Cardiomyocytes Revealed the Important Role of Cardiac T-Tubule Structure for the Maintenance of Contractile Function. Biophysical Journal, 2012, 102, 592a.	0.5	0
50	Approximation for Cooperative Interactions of a Spatially-Detailed Cardiac Sarcomere Model. Cellular and Molecular Bioengineering, 2012, 5, 113-126.	2.1	33
51	A Three-Dimensional Simulation Model of Cardiomyocyte Integrating Excitation-Contraction Coupling and Metabolism. Biophysical Journal, 2011, 101, 2601-2610.	0.5	54
52	Convergence analysis of inexact LU-type preconditioners for indefinite problems arising in incompressible continuum analysis. Japan Journal of Industrial and Applied Mathematics, 2011, 28, 89-117.	0.9	3
53	Transmural and apicobasal gradients in repolarization contribute to T-wave genesis in human surface ECG. American Journal of Physiology - Heart and Circulatory Physiology, 2011, 301, H200-H208.	3.2	64
54	Multiscale Multiphysics Heart Simulator UT-Heart. The Proceedings of the Symposium on Micro-Nano Science and Technology, 2011, 2011.3, 1-2.	0.0	0

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55	A Study on Mechano-Electrochemical Modeling of Cardiomyocyte. Nihon Kikai Gakkai Ronbunshu, A Hen/Transactions of the Japan Society of Mechanical Engineers, Part A, 2010, 76, 1806-1815.	0.2	2
56	Study of efficient homogenization algorithms for nonlinear problems. Computational Mechanics, 2010, 46, 247-258.	4.0	22
57	A Parallel Multilevel Technique for Solving the Bidomain Equation on a Human Heart with Purkinje Fibers and a Torso Model. SIAM Review, 2010, 52, 717-743.	9.5	30
58	A Multi-Scale Heart Simulation on Massively Parallel Computers. , 2010, , .		13
59	Large-scale integrated model is useful for understanding heart mechanisms and developments of medical therapy. , 2009, 2009, 2347-50.		1
60	Nonlinear Homogenization Algorithms with Low Computational Cost. Journal of Computational Science and Technology, 2009, 3, 101-114.	0.4	1
61	A Parallel Multilevel Technique for Solving the Bidomain Equation on a Human Heart with Purkinje Fibers and a Torso Model. SIAM Journal of Scientific Computing, 2008, 30, 2855-2881.	2.8	9
62	2309 Opening and Closing Simulation of Mitral Valves in Human Heart. The Proceedings of the Computational Mechanics Conference, 2007, 2007.20, 139.	0.0	0
63	1P577 Efficient calculation of electrostatic interaction in biomolecular simulation revisited(27.) Tj ETQq1 1 0.784314 rgBT /Overlock 10 Seibutsu Butsuri, 2006, 46, S291.	0.1	0
64	138 Parallelization Strategies for Fluid-Structure Interaction Analysis of a Heart. The Proceedings of the Computational Mechanics Conference, 2006, 2006.19, 333-334.	0.0	0
65	131 The effects of vessel wall properties of cerebral aneurysm on internal blood flow. The Proceedings of the Computational Mechanics Conference, 2006, 2006.19, 319-320.	0.0	0
66	133 Fluid Structure Interaction Analysis of Left and Right Ventricle and Coronary Circulation Based on Porohyperelastic Theory. The Proceedings of the Computational Mechanics Conference, 2006, 2006.19, 323-324.	0.0	0
67	A robust preconditioner for fluidâ€“structure interaction problems. Computer Methods in Applied Mechanics and Engineering, 2005, 194, 4027-4047.	6.6	30
68	Error analysis for a potential problem on locally refined grids. Numerische Mathematik, 2000, 86, 539-563.	1.9	6
69	Fourier Analysis of GMRES(m) Preconditioned by Multigrid. SIAM Journal of Scientific Computing, 2000, 22, 582-603.	2.8	24
70	Ordering strategies and related techniques to overcome the trade-off between parallelism and convergence in incomplete factorizations. Parallel Computing, 1999, 25, 1995-2014.	2.1	39
71	Two-Stage Method for Proteinâ^'Ligand Docking. Journal of Medicinal Chemistry, 1999, 42, 4422-4433.	6.4	86
72	Multigrid Line Smoothers for Higher Order Upwind Discretizations of Convection-Dominated Problems. Journal of Computational Physics, 1998, 139, 274-307.	3.8	49

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73	An Evaluation of Parallel Multigrid as a Solver and a Preconditioner for Singularly Perturbed Problems. SIAM Journal of Scientific Computing, 1998, 19, 87-110.	2.8	49
74	Flexible Multiple Semicoarsening for Three-Dimensional Singularly Perturbed Problems. SIAM Journal of Scientific Computing, 1998, 19, 1646-1666.	2.8	31
75	Real applications on the new parallel system NEC Cenju-3. Parallel Computing, 1996, 22, 131-148.	2.1	7
76	Overlapped Multicolor MILU Preconditioning. SIAM Journal of Scientific Computing, 1995, 16, 636-650.	2.8	8
77	Parallel block preconditioning based on SSOR and MILU. Numerical Linear Algebra With Applications, 1994, 1, 533-553.	1.6	18