Gunnar Seemann

List of Publications by Year
in descending order

123 papers	4,862 citations	126907 33 h-index	106344 65 g-index
129 all docs	129 docs citations	129 times ranked	4442 citing authors

#	Article	IF	Citations
1	Novel insights into the electrophysiology of murine cardiac macrophages: relevance of voltage-gated potassium channels. Cardiovascular Research, 2022, 118, 798-813.	3.8	18
2	A computational model of rabbit geometry and ECG: Optimizing ventricular activation sequence and APD distribution. PLoS ONE, 2022, 17, e0270559.	2.5	2
3	Cycle length statistics during human atrial fibrillation reveal refractory properties of the underlying substrate: a combined <i>in silico</i> and clinical test of concept study. Europace, 2021, 23, i133-i142.	1.7	4
4	Estimating cardiac active tension from wall motionâ€"An inverse problem of cardiac biomechanics. International Journal for Numerical Methods in Biomedical Engineering, 2021, 37, e3448.	2.1	2
5	CVAR-Seg: An Automated Signal Segmentation Pipeline for Conduction Velocity and Amplitude Restitution. Frontiers in Physiology, 2021, 12, 673047.	2.8	3
6	Electro-Mechanical Whole-Heart Digital Twins: A Fully Coupled Multi-Physics Approach. Mathematics, 2021, 9, 1247.	2.2	49
7	The openCARP simulation environment for cardiac electrophysiology. Computer Methods and Programs in Biomedicine, 2021, 208, 106223.	4.7	84
8	Molecular Mechanism of Autosomal Recessive Long QT-Syndrome 1 without Deafness. International Journal of Molecular Sciences, 2021, 22, 1112.	4.1	2
9	A Fully-Coupled Electro-Mechanical Whole-Heart Computational Model: Influence of Cardiac Contraction on the ECG. Frontiers in Physiology, 2021, 12, 778872.	2.8	10
10	Pharmacologic TWIKâ€Related Acidâ€Sensitive K+ Channel (TASKâ€1) Potassium Channel Inhibitor A293 Facilitates Acute Cardioversion of Paroxysmal Atrial Fibrillation in a Porcine Large Animal Model. Journal of the American Heart Association, 2020, 9, e015751.	3.7	21
11	An environment for sustainable research software in Germany and beyond: current state, open challenges, and call for action. F1000Research, 2020, 9, 295.	1.6	21
12	An environment for sustainable research software in Germany and beyond: current state, open challenges, and call for action. F1000Research, 2020, 9, 295.	1.6	16
13	Electro-mechanical (dys-)function in long QT syndrome type 1. International Journal of Cardiology, 2019, 274, 144-151.	1.7	6
14	Comment: postpartum hormones oxytocin and prolactin cause pro-arrhythmic prolongation of cardiac repolarization in long QT syndrome type 2â€"Authorsâ€™ reply. Europace, 2019, 21, 1141-1142.	1.7	1
15	Genetic Ablation of TASK-1 (Tandem of P Domains in a Weak Inward Rectifying K ⁺) Tj ETQq1 1 0.784314 rgBT /Overlock Channels Suppresses Atrial Fibrillation and Prevents Electrical Remodeling. Circulation: Arrhythmia and Electrophysiology, 2019, 12, e007465.	4.8	25
16	A robust computational framework for estimating 3D Bi-Atrial chamber wall thickness. Computers in Biology and Medicine, 2019, 114, 103444.	7.0	16
17	Postpartum hormones oxytocin and prolactin cause pro-arrhythmic prolongation of cardiac repolarization in long QT syndrome type 2. Europace, 2019, 21, 1126-1138.	1.7	25
18	Cardiac ischemiaâ€"insights from computational models. Herzschrittmachertherapie Und Elektrophysiologie, 2018, 29, 48-56.	0.8	13

#	ARTICLE	IF	CITATIONS
19	Influence of left atrial size on P-wave morphology: differential effects of dilation and hypertrophy. Europace, 2018, 20, iii36-iii44.	1.7	32
20	Myocyte Remodeling Due to Fibro-Fatty Infiltrations Influences Arrhythmogenicity. Frontiers in Physiology, 2018, 9, 1381.	2.8	12
21	Modeling effects of voltage dependent properties of the cardiac muscarinic receptor on human sinus node function. PLoS Computational Biology, 2018, 14, e1006438.	3.2	26
22	T-Wave Changes Due to Cardiac Deformation Are Dependent on the Temporal Relationship Between Repolarization and Diastolic Phase. , 2018, , .		1
23	Confocal Microscopy-Based Estimation of Parameters for Computational Modeling of Electrical Conduction in the Normal and Infarcted Heart. Frontiers in Physiology, 2018, 9, 239.	2.8	24
24	Patient-Specific Identification of Atrial Flutter Vulnerabilityâ€“A Computational Approach to Reveal Latent Reentry Pathways. Frontiers in Physiology, 2018, 9, 1910.	2.8	27
25	Sodium permeable and â€œhypersensitiveâ€•<scp>TREK</scp> â€•1 channels cause ventricular tachycardia. EMBO Molecular Medicine, 2017, 9, 403-414.	6.9	65
26	Anatomical and spiral wave reentry in a simplified model for atrial electrophysiology. Journal of Theoretical Biology, 2017, 419, 100-107.	1.7	8
27	Macrophages Facilitate Electrical Conduction in the Heart. Cell, 2017, 169, 510-522.e20.	28.9	703
28	Interregional electro-mechanical heterogeneity in the rabbit myocardium. Progress in Biophysics and Molecular Biology, 2017, 130, 344-355.	2.9	5
29	Hyperthermia dependence of cardiac conduction velocity in rat myocardium: Optical mapping and cardiac near field measurements. , 2017, 2017, 3688-3691.		1
30	Spatial Patterns of Excitation at Tissue and Whole Organ Level Due to Early Afterdepolarizations. Frontiers in Physiology, 2017, 8, 404.	2.8	13
31	Effects of early afterdepolarizations on excitation patterns in an accurate model of the human ventricles. PLoS ONE, 2017, 12, e0188867.	2.5	17
32	Estimating refractory periods during atrial fibrillation based on electrogram cycle lengths in a heterogeneous simulation setup. Current Directions in Biomedical Engineering, 2017, 3, 317-320.	0.4	6
33	Model assisted biosignal analysis of atrial electrograms. TM Technisches Messen, 2016, 83, 102-111.	0.7	1
34	Effect of left atrial hypertrophy on P-wave morphology in a computational model. Current Directions in Biomedical Engineering, 2016, 2, 603-606.	0.4	1
35	Basket-Type Catheters: Diagnostic Pitfalls Caused by Deformation and Limited Coverage. BioMed Research International, 2016, 2016, 1-13.	1.9	28
36	Slow Conduction in the Border Zones of Patchy Fibrosis Stabilizes the Drivers for Atrial Fibrillation: Insights from Multi-Scale Human Atrial Modeling. Frontiers in Physiology, 2016, 7, 474.	2.8	109

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37	OUP accepted manuscript. Europace, 2016, 18, iv35-iv43.	1.7	29
38	Simulation of intracardiac electrograms around acute ablation lesions. Current Directions in Biomedical Engineering, 2016, 2, 607-610.	0.4	2
39	Classification of cardiac excitation patterns during atrial fibrillation. Current Directions in Biomedical Engineering, 2016, 2, 161-166.	0.4	4
40	Electrophysiological characterization of a large set of novel variants in the SCN5A-gene: identification of novel LQTS3 and BrS mutations. Pflugers Archiv European Journal of Physiology, 2016, 468, 1375-1387.	2.8	28
41	Verification of cardiac mechanics software: benchmark problems and solutions for testing active and passive material behaviour. Proceedings of the Royal Society A: Mathematical, Physical and Engineering Sciences, 2015, 471, 20150641.	2.1	80
42	Understanding the cellular mode of action of vernakalant using a computational model: answers and new questions. Current Directions in Biomedical Engineering, 2015, 1, 418-422.	0.4	3
43	Accelerating mono-domain cardiac electrophysiology simulations using OpenCL. Current Directions in Biomedical Engineering, 2015, 1, 413-417.	0.4	0
44	Detecting phase singularities and rotor center trajectories based on the Hilbert transform of intraatrial electrograms in an atrial voxel model. Current Directions in Biomedical Engineering, 2015, 1, 38-41.	0.4	5
45	ECG-Based Detection of Early Myocardial Ischemia in a Computational Model: Impact of Additional Electrodes, Optimal Placement, and a New Feature for ST Deviation. BioMed Research International, 2015, 2015, 1-11.	1.9	16
46	A Computer Simulation Study of Anatomy Induced Drift of Spiral Waves in the Human Atrium. BioMed Research International, 2015, 2015, 1-15.	1.9	30
47	Mesh structure-independent modeling of patient-specific atrial fiber orientation. Current Directions in Biomedical Engineering, 2015, 1, 409-412.	0.4	50
48	Methods for analyzing signal characteristics of stable and unstable rotors in a realistic heart model. , 2015, , .		5
49	Magnetocardiography did not uncover electrically silent ischemia in an in-silico study case. , 2015, , .		0
50	Left and Right Atrial Contribution to the P-wave in Realistic Computational Models. Lecture Notes in Computer Science, 2015, , 439-447.	1.3	19
51	Computational Modelling of Low Voltage Resonant Drift of Scroll Waves in the Realistic Human Atria. Lecture Notes in Computer Science, 2015, , 421-429.	1.3	14
52	Parameter Estimation of Ion Current Formulations Requires Hybrid Optimization Approach to Be Both Accurate and Reliable. Frontiers in Bioengineering and Biotechnology, 2015, 3, 209.	4.1	17
53	Abstract 13021: Regional Electromechanical Heterogeneity in the Rabbit Wild-Type and Long-QT-Syndrome Heart. Circulation, 2015, 132, .	1.6	0
54	Silica nanoparticles are less toxic to human lung cells when deposited at the airâ€“liquid interface compared to conventional submerged exposure. Beilstein Journal of Nanotechnology, 2014, 5, 1590-1602.	2.8	72

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55	In Silico Screening of the Key Cellular Remodeling Targets in Chronic Atrial Fibrillation. PLoS Computational Biology, 2014, 10, e1003620.	3.2	59
56	Arrhythmic potency of human ether-Ã-go-go-related gene mutations L532P and N588K in a computational model of human atrial myocytes. Europace, 2014, 16, 435-443.	1.7	44
57	In-silico assessment of the dynamic effects of amiodarone and dronedarone on human atrial patho-electrophysiology. Europace, 2014, 16, iv30-iv38.	1.7	45
58	Patient-specific modeling of atrial fibrosis increases the accuracy of sinus rhythm simulations and may explain maintenance of atrial fibrillation. Journal of Electrocardiology, 2014, 47, 324-328.	0.9	48
59	Simulation of the contraction of the ventricles in a human heart model including atria and pericardium. Biomechanics and Modeling in Mechanobiology, 2014, 13, 627-641.	2.8	81
60	Characterization of Radiofrequency Ablation Lesion Development Based on Simulated and Measured Intracardiac Electrograms. IEEE Transactions on Biomedical Engineering, 2014, 61, 2467-2478.	4.2	17
61	Quantitative Analysis of Cardiac Tissue Including Fibroblasts Using Three-Dimensional Confocal Microscopy and Image Reconstruction: Towards a Basis for Electrophysiological Modeling. IEEE Transactions on Medical Imaging, 2013, 32, 862-872.	8.9	31
62	In-silico modeling of atrial repolarization in normal and atrial fibrillation remodeled state. Medical and Biological Engineering and Computing, 2013, 51, 1105-1119.	2.8	51
63	Towards personalized clinical in-silico modeling of atrial anatomy and electrophysiology. Medical and Biological Engineering and Computing, 2013, 51, 1251-1260.	2.8	39
64	Personalization of Atrial Anatomy and Electrophysiology as a Basis for Clinical Modeling of Radio-Frequency Ablation of Atrial Fibrillation. IEEE Transactions on Medical Imaging, 2013, 32, 73-84.	8.9	83
65	Comparison of simulated and clinical intracardiac electrograms. , 2013, 2013, 6858-61.		3
66	Rotor Termination Is Critically Dependent on Kinetic Properties of IKur Inhibitors in an In Silico Model of Chronic Atrial Fibrillation. PLoS ONE, 2013, 8, e83179.	2.5	17
67	A Semi-automatic Approach for Segmentation of Three-Dimensional Microscopic Image Stacks of Cardiac Tissue. Lecture Notes in Computer Science, 2013, , 300-307.	1.3	14
68	Impact of amiodarone and cisapride on simulated human ventricular electrophysiology and electrocardiograms. Europace, 2012, 14, v90-v96.	1.7	28
69	Myofiber orientation and electrical activation in human and sheep atrial models. , 2012, 2012, 6365-8.		6
70	Clinical applications of image fusion for electrophysiology procedures. , 2012, , .		5
71	Comparing measured and simulated wave directions in the left atrium â€“ a workflow for model personalization and validation. Biomedizinische Technik, 2012, 57, 79-87.	0.8	13
72	Computational modeling of the human atrial anatomy and electrophysiology. Medical and Biological Engineering and Computing, 2012, 50, 773-799.	2.8	128

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73	Influence of ischemic core muscle fibers on surface depolarization potentials in superfused cardiac tissue preparations: a simulation study. Medical and Biological Engineering and Computing, 2012, 50, 461-472.	2.8	20
74	Influence of <formula formulatype="inline"><tex Notation="TeX">${I_{Ks}}$</tex></formula> Heterogeneities on the Genesis of the T-wave: A Computational Evaluation. IEEE Transactions on Biomedical Engineering, 2012, 59, 311-322.	4.2	63
75	Benchmarking electrophysiological models of human atrial myocytes. Frontiers in Physiology, 2012, 3, 487.	2.8	131
76	In Silico Investigation of Electrically Silent Acute Cardiac Ischemia in the Human Ventricles. IEEE Transactions on Biomedical Engineering, 2011, 58, 2961-2964.	4.2	28
77	Alterations of atrial electrophysiology related to hemodialysis session: insights from a multiscale computer model. Journal of Electrocardiology, 2011, 44, 176-183.	0.9	29
78	Cardiac cell modelling: Observations from the heart of the cardiac physiome project. Progress in Biophysics and Molecular Biology, 2011, 104, 2-21.	2.9	139
79	Models of cardiac tissue electrophysiology: Progress, challenges and open questions. Progress in Biophysics and Molecular Biology, 2011, 104, 22-48.	2.9	483
80	Predicting Tissue Conductivity Influences on Body Surface Potentialsâ€"An Efficient Approach Based on Principal Component Analysis. IEEE Transactions on Biomedical Engineering, 2011, 58, 265-273.	4.2	26
81	Impact of Physiological Ventricular Deformation on the Morphology of the T-Wave: A Hybrid, Static-Dynamic Approach. IEEE Transactions on Biomedical Engineering, 2011, 58, 2109-2119.	4.2	21
82	Conduction Velocity Restitution of the Human Atriumâ€"An Efficient Measurement Protocol for Clinical Electrophysiological Studies. IEEE Transactions on Biomedical Engineering, 2011, 58, 2648-2655.	4.2	55
83	A framework for personalization of computational models of the human atria. , 2011, 2011, 4324-8.		11
84	Verification of cardiac tissue electrophysiology simulators using an <i>N</i> -version benchmark. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2011, 369, 4331-4351.	3.4	253
85	Comparing Simulated Electrocardiograms of Different Stages of Acute Cardiac Ischemia. Lecture Notes in Computer Science, 2011, , 11-19.	1.3	6
86	Modeling Atrial Fiber Orientation in Patient-Specific Geometries: A Semi-automatic Rule-Based Approach. Lecture Notes in Computer Science, 2011, , 223-232.	1.3	59
87	Ranking the Influence of Tissue Conductivities on Forward-Calculated ECGs. IEEE Transactions on Biomedical Engineering, 2010, 57, 1568-1576.	4.2	121
88	Electrophysiological Modeling for Cardiology: Methods and Potential Applications. IT - Information Technology, 2010, 52, 242-249.	0.9	3
89	The Influence of Age and Skull Conductivity on Surface and Subdermal Bipolar EEG Leads. Computational Intelligence and Neuroscience, 2010, 2010, 1-7.	1.7	56
90	Wave-Direction and Conduction-Velocity Analysis From Intracardiac Electrogramsâ€"A Single-Shot Technique. IEEE Transactions on Biomedical Engineering, 2010, 57, 2394-2401.	4.2	43

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91	Strong scaling and speedup to 16,384 processors in cardiac electro — Mechanical simulations. , 2009, 2009, 2795-8.		16
92	Orthogonal recursive bisection data decomposition for high performance computing in cardiac model simulations: Dependence on anatomical geometry. , 2009, 2009, 2799-802.		2
93	Modeling of cardiac ischemia in human myocytes and tissue including spatiotemporal electrophysiological variations / Modellierung kardialer IschÃmie in menschlichen Myozyten und Gewebe. Biomedizinische Technik, 2009, 54, 107-125.	0.8	28
94	A Model of Electrical Conduction in Cardiac Tissue Including Fibroblasts. Annals of Biomedical Engineering, 2009, 37, 874-889.	2.5	77
95	Selective noradrenaline reuptake inhibitor atomoxetine directly blocks hERG currents. British Journal of Pharmacology, 2009, 156, 226-236.	5.4	39
96	Adaption of Mathematical Ion Channel Models to measured data using the Particle Swarm Optimization. IFMBE Proceedings, 2009, , 2507-2510.	0.3	5
97	Investigating Arrhythmogenic Effects of the hERG Mutation N588K in Virtual Human Atria. Lecture Notes in Computer Science, 2009, , 144-153.	1.3	5
98	Extracting Clinically Relevant Circular Mapping and Coronary Sinus Catheter Potentials from Atrial Simulations. Lecture Notes in Computer Science, 2009, , 30-38.	1.3	6
99	Simulation of clinical electrophysiology in 3D human atria: a highâ€performance computing and highâ€performance visualization application. Concurrency Computation Practice and Experience, 2008, 20, 1317-1328.	2.2	20
100	Large scale cardiac modeling on the Blue Gene supercomputer. , 2008, 2008, 577-80.		6
101	Deficient Zebrafish <i>Ether-àl€-Go-Go</i> â€"Related Gene Channel Gating Causes Short-QT Syndrome in Zebrafish <i>Reggae</i> Mutants. Circulation, 2008, 117, 866-875.	1.6	115
102	Preventive Ablation Strategies in a Biophysical Model of Atrial Fibrillation Based on Realistic Anatomical Data. IEEE Transactions on Biomedical Engineering, 2008, 55, 399-406.	4.2	52
103	The influence of fibre orientation, extracted from different segments of the human left ventricle, on the activation and repolarization sequence: a simulation study. Europace, 2007, 9, vi96-vi104.	1.7	18
104	Computer based modeling of the congenital long-QT 2 syndrome in the Visible Man torso: From genes to ECG. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2007, 2007, 1410-3.	0.5	7
105	A Framework for Modeling of Mechano-Electrical Feedback Mechanisms of Cardiac Myocytes and Tissues. Annual International Conference of the IEEE Engineering in Medicine and Biology Society, 2007, 2007, 160-3.	0.5	3
106	Modeling of IK1 mutations in human left ventricular myocytes and tissue. American Journal of Physiology - Heart and Circulatory Physiology, 2007, 292, H549-H559.	3.2	30
107	Anticholinergic antiparkinson drug orphenadrine inhibits HERG channels: block attenuation by mutations of the pore residues Y652 or F656. Naunyn-Schmiedeberg's Archives of Pharmacology, 2007, 376, 275-284.	3.0	12
108	Scroll Waves in 3D Virtual Human Atria: A Computational Study. , 2007, , 129-138.		11

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109	The missing link between cardiovascular rhythm control and myocardial cell modeling. Biomedizinische Technik, 2006, 51, 205-209.	0.8	3
110	Heterogeneous three-dimensional anatomical and electrophysiological model of human atria. Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences, 2006, 364, 1465-1481.	3.4	229
111	Influence of electrophysiological heterogeneity on electrical stimulation in healthy and failing human hearts. Medical and Biological Engineering and Computing, 2005, 43, 783-792.	2.8	2
112	Insights into Electrophysiological Studies with Papillary Muscle by Computational Models. Lecture Notes in Computer Science, 2005, , 216-225.	1.3	0
113	Modelling of short QT syndrome in a heterogeneous model of the human ventricular wall. Europace, 2005, 7, S105-S117.	1.7	38
114	Quantitative Reconstruction of Cardiac Electromechanics in Human Myocardium:. Journal of Cardiovascular Electrophysiology, 2003, 14, S210-S218.	1.7	18
115	Quantitative Reconstruction of Cardiac Electromechanics in Human Myocardium:. Journal of Cardiovascular Electrophysiology, 2003, 14, S219-S228.	1.7	35
116	MODELING OF PROTEIN INTERACTIONS INVOLVED IN CARDIAC TENSION DEVELOPMENT. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2003, 13, 3561-3578.	1.7	27
117	MATHEMATICAL MODELING OF CARDIAC ELECTRO-MECHANICS: FROM PROTEIN TO ORGAN. International Journal of Bifurcation and Chaos in Applied Sciences and Engineering, 2003, 13, 3747-3755.	1.7	4
118	Effects of Fibroblasts coupling on the Electrophysiology of Cardiomyocytes from Different Regions of the Human Atrium: a Simulation Study. , 0, , .		3
119	Computational Mechanistic Investigation of Chronotropic Effects on Murine Sinus Node Cells. , 0, , .		1
120	openCARP: An Open Sustainable Framework for In-Silico Cardiac Electrophysiology Research. , 0, , .		8
121	Regularity of Node Distribution Impacts Conduction Velocities in Finite Element Simulations of the Heart. , 0, , .		0
122	Left Atrial Hypertrophy Increases P:Wave Terminal Force Through Amplitude but not Duration. , 0, , .		1
123	Mathematical Modeling of Nonselective Channels: Estimating Ion Current Fractions and Their Impact on Pathological Simulations. , 0, , .		0