Richard H Clayton

List of Publications by Citations

90 papers	2,430 citations	23 h-index	47 g-index
96 ext. papers	3,082 ext. citations	4 avg, IF	5.01 L-index

#	Paper	IF	Citations
90	Models of cardiac tissue electrophysiology: progress, challenges and open questions. *Progress in Biophysics and Molecular Biology*, **2011**, 104, 22-48	4.7	363
89	Verification of cardiac tissue electrophysiology simulators using an N-version benchmark. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2011**, 369, 4331-51	3	177
88	Evidence for multiple mechanisms in human ventricular fibrillation. *Circulation*, **2006**, 114, 536-42	16.7	176
87	A guide to modelling cardiac electrical activity in anatomically detailed ventricles. *Progress in Biophysics and Molecular Biology*, **2008**, 96, 19-43	4.7	144
86	Whole heart action potential duration restitution properties in cardiac patients: a combined clinical and modelling study. *Experimental Physiology*, **2006**, 91, 339-54	2.4	102
85	Uncertainty and variability in computational and mathematical models of cardiac physiology. *Journal of Physiology*, **2016**, 594, 6833-6847	3.9	83
84	Uncertainty and variability in models of the cardiac action potential: Can we build trustworthy models?. *Journal of Molecular and Cellular Cardiology*, **2016**, 96, 49-62	5.8	80
83	Phase singularities and filaments: simplifying complexity in computational models of ventricular fibrillation. *Progress in Biophysics and Molecular Biology*, **2006**, 90, 378-98	4.7	80
82	Organization of ventricular fibrillation in the human heart: experiments and models. *Experimental Physiology*, **2009**, 94, 553-62	2.4	64
81	Recognition of ventricular fibrillation using neural networks. *Medical and Biological Engineering and Computing*, **1994**, 32, 217-20	3.1	59
80	Comparison of four techniques for recognition of ventricular fibrillation from the surface ECG. *Medical and Biological Engineering and Computing*, **1993**, 31, 111-7	3.1	58
79	Propagation of normal beats and re-entry in a computational model of ventricular cardiac tissue with regional differences in action potential shape and duration. *Progress in Biophysics and Molecular Biology*, **2004**, 85, 473-99	4.7	41
78	Dispersion of cardiac action potential duration and the initiation of re-entry: a computational study. *BioMedical Engineering OnLine*, **2005**, 4, 11	4.1	40
77	Regional differences in APD restitution can initiate wavebreak and re-entry in cardiac tissue: a computational study. *BioMedical Engineering OnLine*, **2005**, 4, 54	4.1	38
76	A method to quantify the dynamics and complexity of re-entry in computational models of ventricular fibrillation. *Physics in Medicine and Biology*, **2002**, 47, 225-38	3.8	38
75	Acidosis in models of cardiac ventricular myocytes. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2006**, 364, 1171-86	3	37
74	Self-terminating ventricular tachyarrhythmias--a diagnostic dilemma?. *Lancet, The*, **1993**, 341, 93-5	40	36

73	Bayesian Sensitivity Analysis of a Cardiac Cell Model Using a Gaussian Process Emulator. *PLoS ONE*, **2015**, 10, e0130252	3.7	35
72	Computational models of normal and abnormal action potential propagation in cardiac tissue: linking experimental and clinical cardiology. *Physiological Measurement*, **2001**, 22, R15-34	2.9	32
71	Effect of global cardiac ischemia on human ventricular fibrillation: insights from a multi-scale mechanistic model of the human heart. *PLoS Computational Biology*, **2014**, 10, e1003891	5	29
70	A computational model of auxin and pH dynamics in a single plant cell. *Journal of Theoretical Biology*, **2012**, 296, 84-94	2.3	27
69	Filament behavior in a computational model of ventricular fibrillation in the canine heart. *IEEE Transactions on Biomedical Engineering*, **2004**, 51, 28-34	5	26
68	Developing a novel comprehensive framework for the investigation of cellular and whole heart electrophysiology in the in situ human heart: historical perspectives, current progress and future prospects. *Progress in Biophysics and Molecular Biology*, **2014**, 115, 252-60	4.7	25
67	Human ventricular fibrillation during global ischemia and reperfusion: paradoxical changes in activation rate and wavefront complexity. *Circulation: Arrhythmia and Electrophysiology*, **2011**, 4, 684-91	6.4	23
66	Computational framework for simulating the mechanisms and ECG of re-entrant ventricular fibrillation. *Physiological Measurement*, **2002**, 23, 707-26	2.9	23
65	Unraveling the Underlying Arrhythmia Mechanism in Persistent Atrial Fibrillation: Results From the STARLIGHT Study. *Circulation: Arrhythmia and Electrophysiology*, **2018**, 11, e005897	6.4	23
64	Heart rate and blood pressure variability in normal subjects compared with data from beat-to-beat models developed from de Boer Ts model of the cardiovascular system. *Physiological Measurement*, **2000**, 21, 305-18	2.9	21
63	Computer simulation: the imaginary friend of auxin transport biology. *BioEssays*, **2010**, 32, 828-35	4.1	20
62	Vortex filament dynamics in computational models of ventricular fibrillation in the heart. *Chaos*, **2008**, 18, 043127	3.3	20
61	Analysis of the body surface ECG measured in independent leads during ventricular fibrillation in humans. *PACE - Pacing and Clinical Electrophysiology*, **1995**, 18, 1876-81	1.6	20
60	Mathematical modelling for the new millenium: medicine by numbers. *Medical Engineering and Physics*, **2002**, 24, 565-74	2.4	19
59	Dynamical and cellular electrophysiological mechanisms of ECG changes during ischaemia. *Journal of Theoretical Biology*, **2005**, 237, 369-81	2.3	19
58	Measurement of baroreflex gain from heart rate and blood pressure spectra: a comparison of spectral estimation techniques. *Physiological Measurement*, **1995**, 16, 131-9	2.9	18
57	Analysis of cardiac fibrillation using phase mapping. *Cardiac Electrophysiology Clinics*, **2015**, 7, 49-58	1.4	17
56	Effect of regional differences in cardiac cellular electrophysiology on the stability of ventricular arrhythmias: a computational study. *Physics in Medicine and Biology*, **2003**, 48, 95-111	3.8	17

55	Dynamics and interaction of filaments in a computational model of re-entrant ventricular fibrillation. *Physics in Medicine and Biology*, **2002**, 47, 1777-92	3.8	17
54	Mechanisms of stochastic onset and termination of atrial fibrillation studied with a cellular automaton model. *Journal of the Royal Society Interface*, **2017**, 14,	4.1	16
53	Baroreflex function in sedentary and endurance-trained elderly people. *Age and Ageing*, **1997**, 26, 289-94	3	16
52	Re-entrant cardiac arrhythmias in computational models of long QT myocardium. *Journal of Theoretical Biology*, **2001**, 208, 215-25	2.3	16
51	Bayesian sensitivity analysis of a 1D vascular model with Gaussian process emulators. *International Journal for Numerical Methods in Biomedical Engineering*, **2017**, 33, e2882	2.6	15
50	Endogenous driving and synchronization in cardiac and uterine virtual tissues: bifurcations and local coupling. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2006**, 364, 1313-27	3	15
49	Quantifying atrial anatomy uncertainty from clinical data and its impact on electro-physiology simulation predictions. *Medical Image Analysis*, **2020**, 61, 101626	15.4	15
48	Dispersion of Recovery and Vulnerability to Re-entry in a Model of Human Atrial Tissue With Simulated Diffuse and Focal Patterns of Fibrosis. *Frontiers in Physiology*, **2018**, 9, 1052	4.6	15
47	An audit of uncertainty in multi-scale cardiac electrophysiology models. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2020**, 378, 20190335	3	14
46	Gaussian process manifold interpolation for probabilistic atrial activation maps and uncertain conduction velocity. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2020**, 378, 20190345	3	14
45	Quantifying the effect of uncertainty in input parameters in a simplified bidomain model of partial thickness ischaemia. *Medical and Biological Engineering and Computing*, **2018**, 56, 761-780	3.1	14
44	Fitting two human atrial cell models to experimental data using Bayesian history matching. *Progress in Biophysics and Molecular Biology*, **2018**, 139, 43-58	4.7	14
43	Experiment-model interaction for analysis of epicardial activation during human ventricular fibrillation with global myocardial ischaemia. *Progress in Biophysics and Molecular Biology*, **2011**, 107, 101-11	4.7	13
42	Probabilistic Interpolation of Uncertain Local Activation Times on Human Atrial Manifolds. *IEEE Transactions on Biomedical Engineering*, **2020**, 67, 99-109	5	13
41	Assessment of oxygen transfer in membrane oxygenators during clinical cardiopulmonary bypass. *Clinical Physics and Physiological Measurement: an Official Journal of the Hospital Physicistsp Association, Deutsche Gesellschaft Fur Medizinische Physik and the European Federation of Organisations for Medical Physics*, **1992**, 13, 167-77		12
40	Comparative assessment of the ventricular fibrillation detection algorithms in five semi-automatic or advisory defibrillators. *Resuscitation*, **1993**, 26, 163-72	4	12
39	Evidence for electrical organization during ventricular fibrillation in the human heart. *Journal of Cardiovascular Electrophysiology*, **1995**, 6, 616-24	2.7	11
38	The Role of Cardiac MRI in the Management of Ventricular Arrhythmias in Ischaemic and Non-ischaemic Dilated Cardiomyopathy. *Arrhythmia and Electrophysiology Review*, **2019**, 8, 191-201	3.2	10

37	The virtual ventricular wall: a tool for exploring cardiac propagation and arrhythmogenesis. *Journal of Biological Physics*, **2006**, 32, 355-68	1.6	10
36	Computational models of ventricular arrhythmia mechanisms: recent developments and future prospects. *Drug Discovery Today: Disease Models*, **2014**, 14, 17-22	1.3	9
35	Modeling the urinary tract-computational, physical, and biological methods. *Neurourology and Urodynamics*, **2011**, 30, 692-9	2.3	9
34	Influence of cardiac tissue anisotropy on re-entrant activation in computational models of ventricular fibrillation. *Physica D: Nonlinear Phenomena*, **2009**, 238, 951-961	3.3	9
33	A Stochastic Individual-Based Model of the Progression of Atrial Fibrillation in Individuals and Populations. *PLoS ONE*, **2016**, 11, e0152349	3.7	9
32	TEMPORAL EVOLUTION OF NONLINEAR DYNAMICS IN VENTRICULAR ARRHYTHMIA. *International Journal of Bifurcation and Chaos in Applied Sciences and Engineering*, **2001**, 11, 2531-2548	2	7
31	Assessment of the ventricular fibrillation detection algorithm in the semi-automatic Cardio-Aid defibrillator. *Resuscitation*, **1995**, 29, 113-7	4	7
30	The fickle heart: uncertainty quantification in cardiac and cardiovascular modelling and simulation. *Philosophical Transactions Series A, Mathematical, Physical, and Engineering Sciences*, **2020**, 378, 20200119	3	7
29	M/M/Infinity Birth-Death Processes - A Quantitative Representational Framework to Summarize and Explain Phase Singularity and Wavelet Dynamics in Atrial Fibrillation. *Frontiers in Physiology*, **2020**, 11, 616866	4.6	7
28	Sensitivity and Uncertainty Analysis of Two Human Atrial Cardiac Cell Models Using Gaussian Process Emulators. *Frontiers in Physiology*, **2020**, 11, 364	4.6	6
27	CONSTRUCTIVE VOLUME GEOMETRY APPLIED TO VISUALIZATION OF CARDIAC ANATOMY AND ELECTROPHYSIOLOGY. *International Journal of Bifurcation and Chaos in Applied Sciences and Engineering*, **2003**, 13, 3591-3604	2	6
26	Re-entry in computational models of ischaemic myocardium. *Chaos, Solitons and Fractals*, **2002**, 13, 1671-1683	1.9	6
25	DenResCov-19: A deep transfer learning network for robust automatic classification of COVID-19, pneumonia, and tuberculosis from X-rays. *Computerized Medical Imaging and Graphics*, **2021**, 94, 102008	7.6	6
24	A theoretical analysis of how plant growth is limited by carbon allocation strategies and respiration. *In Silico Plants*, **2019**, 1,	3.2	5
23	Early afterdepolarisations and ventricular arrhythmias in cardiac tissue: a computational study. *Medical and Biological Engineering and Computing*, **2009**, 47, 291-300	3.1	4
22	Methods for Identifying and Tracking Phase Singularities in Computational Models of Re-entrant Fibrillation. *Lecture Notes in Computer Science*, **2005**, 246-255	0.9	4
21	Clinical comparison of two devices for detection of microemboli during cardiopulmonary bypass. *Clinical Physics and Physiological Measurement: an Official Journal of the Hospital Physicistsp Association, Deutsche Gesellschaft Fur Medizinische Physik and the European Federation of Organisations for Medical Physics*, **1990**, 11, 327-32		4
20	Rate-dependent measures of repolarization predict inducibility of ventricular arrhythmias. *Europace*, **2010**, 12, 553-60	3.9	3

19	VULNERABILITY TO REENTRY, AND DRIFT, STABILITY AND BREAKDOWN OF SPIRAL WAVES IN A LINEAR GRADIENT OF GK IN A LUO-RUDY 1 VIRTUAL VENTRICULAR TISSUE. *International Journal of Bifurcation and Chaos in Applied Sciences and Engineering*, **2003**, 13, 3865-3871	2	3
18	CAN ENDOGENOUS, NOISE-TRIGGERED EARLY AFTER-DEPOLARIZATIONS INITIATE REENTRY IN A MODIFIED LUO-RUDY VENTRICULAR VIRTUAL TISSUE?. *International Journal of Bifurcation and Chaos in Applied Sciences and Engineering*, **2003**, 13, 3835-3843	2	3
17	Spatio-temporal Organization During Ventricular Fibrillation in the Human Heart. *Annals of Biomedical Engineering*, **2018**, 46, 864-876	4.7	2
16	Coherence between body surface ECG leads and intracardiac signals increases during the first 10 s of ventricular fibrillation in the human heart. *Physiological Measurement*, **1999**, 20, 159-66	2.9	2
15	MA-SOCRATIS: An automatic pipeline for robust segmentation of the left ventricle and scar. *Computerized Medical Imaging and Graphics*, **2021**, 93, 101982	7.6	2
14	Assessing measures of atrial fibrillation clustering via stochastic models of episode recurrence and disease progression **2015**,		1
13	Models of ventricular arrhythmia mechanisms. *Annual International Conference of the IEEE Engineering in Medicine and Biology Society IEEE Engineering in Medicine and Biology Society Annual International Conference*, **2013**, 2013, 1526-9	0.9	1
12	DYNAMICS AND INTERACTION OF FILAMENTS DURING REENTRY AND FIBRILLATION IN MAMMALIAN VIRTUAL VENTRICULAR TISSUE. *International Journal of Bifurcation and Chaos in Applied Sciences and Engineering*, **2003**, 13, 3733-3745	2	1
11	A governing equation for rotor and wavelet number in human clinical ventricular fibrillation: Implications for sudden cardiac death. *Heart Rhythm*, **2021**,	6.7	1
10	Variance Based Sensitivity Analysis of (I_{Kr}) in a Model of the Human Atrial Action Potential Using Gaussian Process Emulators. *Lecture Notes in Computer Science*, **2017**, 249-259	0.9	1
9	Sensitivity and uncertainty analysis of two human atrial cardiac cell models using Gaussian process emulators		1
8	Bayesian Calibration of Electrophysiology Models Using Restitution Curve Emulators. *Frontiers in Physiology*, **2021**, 12, 693015	4.6	1
7	Characterization of persistent atrial fibrillation with non-contact charge density mapping and relationship to voltage.. *Journal of Arrhythmia*, **2022**, 38, 77-85	1.5	0
6	Hypoglycaemia combined with mild hypokalaemia reduces the heart rate and causes abnormal pacemaker activity in a computational model of a human sinoatrial cell. *Journal of the Royal Society Interface*, **2021**, 18, 20210612	4.1	0
5	Time-Averaged Wavefront Analysis Demonstrates Preferential Pathways of Atrial Fibrillation, Predicting Pulmonary Vein Isolation Acute Response. *Frontiers in Physiology*, **2021**, 12, 707189	4.6	0
4	21 Towards understanding the physical basis of re-entrant cardiac arrhythmias. *Studies in Multidisciplinarity*, **2005**, 389-410		
3	Simplified body-surface electrocardiographic maps with depolarization magnitude and direction. *Physiological Measurement*, **1994**, 15, 235-42	2.9	
2	Visualising Cardiac Anatomy Using Constructive Volume Geometry. *Lecture Notes in Computer Science*, **2003**, 30-38	0.9	

1 Modelling the mammalian heart. *SEB Experimental Biology Series*, **2008**, 61, 175-93