Jordi Alastruey

List of Publications by Year
in descending order

77 papers	3,549 citations	147726 31 h-index	143943 57 g-index
79 all docs	79 docs citations	79 times ranked	2616 citing authors

#	Article	IF	Citations
1	Modelling the circle of Willis to assess the effects of anatomical variations and occlusions on cerebral flows. Journal of Biomechanics, 2007, 40, 1794-1805.	0.9	356
2	Pulse wave propagation in a model human arterial network: Assessment of 1-D visco-elastic simulations against in vitro measurements. Journal of Biomechanics, 2011, 44, 2250-2258.	0.9	277
3	A systematic comparison between 1â€D and 3â€D hemodynamics in compliant arterial models. International Journal for Numerical Methods in Biomedical Engineering, 2014, 30, 204-231.	1.0	225
4	Breathing Rate Estimation From the Electrocardiogram and Photoplethysmogram: A Review. IEEE Reviews in Biomedical Engineering, 2018, 11, 2-20.	13.1	224
5	Pulse wave propagation in a model human arterial network: Assessment of 1-D numerical simulations against in vitro measurements. Journal of Biomechanics, 2007, 40, 3476-3486.	0.9	223
6	A benchmark study of numerical schemes for oneâ€dimensional arterial blood flow modelling. International Journal for Numerical Methods in Biomedical Engineering, 2015, 31, e02732.	1.0	144
7	Modeling arterial pulse waves in healthy aging: a database for in silico evaluation of hemodynamics and pulse wave indexes. American Journal of Physiology - Heart and Circulatory Physiology, 2019, 317, H1062-H1085.	1.5	127
8	Reduced modelling of blood flow in the cerebral circulation: Coupling 1â€D, 0â€D and cerebral autoâ€regulation models. International Journal for Numerical Methods in Fluids, 2008, 56, 1061-1067.	0.9	95
9	On the impact of modelling assumptions in multi-scale, subject-specific models of aortic haemodynamics. Journal of the Royal Society Interface, 2016, 13, 20160073.	1.5	92
10	Extraction of respiratory signals from the electrocardiogram and photoplethysmogram: technical and physiological determinants. Physiological Measurement, 2017, 38, 669-690.	1.2	92
11	A Technical Assessment of Pulse Wave Velocity Algorithms Applied to Non-invasive Arterial Waveforms. Annals of Biomedical Engineering, 2013, 41, 2617-2629.	1.3	89
12	Analysing the pattern of pulse waves in arterial networks: a time-domain study. Journal of Engineering Mathematics, 2009, 64, 331-351.	0.6	88
13	A database of virtual healthy subjects to assess the accuracy of foot-to-foot pulse wave velocities for estimation of aortic stiffness. American Journal of Physiology - Heart and Circulatory Physiology, 2015, 309, H663-H675.	1.5	85
14	Attenuation of Wave Reflection by Wave Entrapment Creates a â€œHorizon Effectâ€•in the Human Aorta. Hypertension, 2012, 60, 778-785.	1.3	79
15	Assessing mental stress from the photoplethysmogram: a numerical study. Physiological Measurement, 2018, 39, 054001.	1.2	71
16	Importance of the aortic reservoir in determining the shape of the arterial pressure waveform â€“ The forgotten lessons of Frank. Artery Research, 2007, 1, 40.	0.3	62
17	Theoretical models for coronary vascular biomechanics: Progress & challenges. Progress in Biophysics and Molecular Biology, 2011, 104, 49-76.	1.4	62
18	Physical determining factors of the arterial pulse waveform: theoretical analysis and calculation using the 1-D formulation. Journal of Engineering Mathematics, 2012, 77, 19-37.	0.6	58

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19	Coronary and Microvascular Physiology During Intra-Aortic BalloonÂCounterpulsation. JACC: Cardiovascular Interventions, 2014, 7, 631-640.	1.1	58
20	Separation of the reservoir and wave pressure and velocity from measurements at an arbitrary location in arteries. Proceedings of the Institution of Mechanical Engineers, Part H: Journal of Engineering in Medicine, 2008, 222, 403-416.	1.0	55
21	Numerical assessment of time-domain methods for the estimation of local arterial pulse wave speed. Journal of Biomechanics, 2011, 44, 885-891.	0.9	55
22	Arterial Pressure and Flow Wave Analysis Using Time-Domain 1-D Hemodynamics. Annals of Biomedical Engineering, 2015, 43, 190-206.	1.3	53
23	Arterial reservoir-excess pressure and ventricular work. Medical and Biological Engineering and Computing, 2012, 50, 419-424.	1.6	52
24	Reducing the number of parameters in 1D arterial blood flow modeling: less is more for patient-specific simulations. American Journal of Physiology - Heart and Circulatory Physiology, 2015, 309, H222-H234.	1.5	48
25	Wearable Photoplethysmography for Cardiovascular Monitoring. Proceedings of the IEEE, 2022, 110, 355-381.	16.4	48
26	Forward and Backward Pressure Waveform Morphology in Hypertension. Hypertension, 2017, 69, 375-381.	1.3	43
27	Dominance of the Forward Compression Wave in Determining Pulsatile Components of Blood Pressure. Hypertension, 2014, 64, 1116-1123.	1.3	40
28	Identifying Hemodynamic Determinants of Pulse Pressure. Hypertension, 2017, 70, 1176-1182.	1.3	40
29	Influence of mental stress on the pulse wave features of photoplethysmograms. Healthcare Technology Letters, 2020, 7, 7-12.	1.9	39
30	Novel wave intensity analysis of arterial pulse wave propagation accounting for peripheral reflections. International Journal for Numerical Methods in Biomedical Engineering, 2014, 30, 249-279.	1.0	38
31	Reducing the data: Analysis of the role of vascular geometry on blood flow patterns in curved vessels. Physics of Fluids, 2012, 24, .	1.6	36
32	An impedance pneumography signal quality index: Design, assessment and application to respiratory rate monitoring. Biomedical Signal Processing and Control, 2021, 65, 102339.	3.5	34
33	On the Mechanics Underlying the Reservoir-Excess Separation in Systemic Arteries and their Implications for Pulse Wave Analysis. Cardiovascular Engineering (Dordrecht, Netherlands), 2010, 10, 176-189.	1.0	32
34	A Novel Analytical Approach to Pulsatile Blood Flow in the Arterial Network. Annals of Biomedical Engineering, 2016, 44, 3047-3068.	1.3	29
35	Noninvasive calculation of the aortic blood pressure waveform from the flow velocity waveform: a proof of concept. American Journal of Physiology - Heart and Circulatory Physiology, 2015, 309, H969-H976.	1.5	27
36	Optimization of topological complexity for one-dimensional arterial blood flow models. Journal of the Royal Society Interface, 2018, 15, 20180546.	1.5	26

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37	Estimating pulse wave velocity from the radial pressure wave using machine learning algorithms. PLoS ONE, 2021, 16, e0245026.	1.1	24
38	Can the modified Allen's test always detect sufficient collateral flow in the hand? A computational study. Computer Methods in Biomechanics and Biomedical Engineering, 2006, 9, 353-361.	0.9	23
39	Modelling pulse wave propagation in the rabbit systemic circulation to assess the effects of altered nitric oxide synthesis. Journal of Biomechanics, 2009, 42, 2116-2123.	0.9	23
40	Computational assessment of hemodynamics-based diagnostic tools using a database of virtual subjects: Application to three case studies. Journal of Biomechanics, 2016, 49, 3908-3914.	0.9	21
41	Relative contributions from the ventricle and arterial tree to arterial pressure and its amplification: an experimental study. American Journal of Physiology - Heart and Circulatory Physiology, 2017, 313, H558-H567.	1.5	21
42	Hemodynamic Mechanism of the Age-Related Increase in Pulse Pressure in Women. Hypertension, 2019, 73, 1018-1024.	1.3	19
43	Estimating central blood pressure from aortic flow: development and assessment of algorithms. American Journal of Physiology - Heart and Circulatory Physiology, 2021, 320, H494-H510.	1.5	19
44	Determinant Factors for Arterial Hemodynamics in Hypertension: Theoretical Insights From a Computational Model-Based Study. Journal of Biomechanical Engineering, 2018, 140, .	0.6	18
45	Arterial pulse wave propagation across stenoses and aneurysms: assessment of one-dimensional simulations against three-dimensional simulations and<i>in vitro</i>measurements. Journal of the Royal Society Interface, 2021, 18, 20200881.	1.5	16
46	Aortic length measurements for pulse wave velocity calculation: manual 2D vs automated 3D centreline extraction. Journal of Cardiovascular Magnetic Resonance, 2016, 19, 32.	1.6	14
47	Robust and practical non-invasive estimation of local arterial wave speed and mean blood velocity waveforms. Physiological Measurement, 2017, 38, 2081-2099.	1.2	14
48	Machine Learning-Based Pulse Wave Analysis for Early Detection of Abdominal Aortic Aneurysms Using In Silico Pulse Waves. Symmetry, 2021, 13, 804.	1.1	14
49	Computational Analysis of Coronary Blood Flow: The Role of Asynchronous Pacing and Arrhythmias. Mathematics, 2020, 8, 1205.	1.1	13
50	Estimating Central Pulse Pressure From Blood Flow by Identifying the Main Physical Determinants of Pulse Pressure Amplification. Frontiers in Physiology, 2021, 12, 608098.	1.3	10
51	Acquiring Wearable Photoplethysmography Data in Daily Life: The PPG Diary Pilot Study. , 2020, 2, 80.		9
52	An in silico simulation of flow-mediated dilation reveals that blood pressure and other factors may influence the response independent of endothelial function. American Journal of Physiology - Heart and Circulatory Physiology, 2020, 318, H1337-H1345.	1.5	8
53	Placental transfusion insult in the predisposition for SIDS: A mathematical study. Early Human Development, 2009, 85, 455-459.	0.8	7
54	Estimation of central pulse wave velocity from radial pulse wave analysis. Computer Methods and Programs in Biomedicine, 2022, 219, 106781.	2.6	7

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55	Numerical assessment of the stiffness index. , 2014, 2014, 1969-72.		6
56	Novel Pressure Wave Separation Analysis for Cardiovascular Function Assessment Highlights Major Role of Aortic Root. IEEE Transactions on Biomedical Engineering, 2022, 69, 1707-1716.	2.5	6
57	Acquiring Wearable Photoplethysmography Data in Daily Life: The PPG Diary Pilot Study. Engineering Proceedings, 2020, 2, 80.	0.4	5
58	One-dimensional modelling of pulse wave propagation in human airway bifurcations in space–time variables. , 2009, 2009, 5482-5.		4
59	Altered Aortic Hemodynamics and Relative Pressure in Patients with Dilated Cardiomyopathy. Journal of Cardiovascular Translational Research, 2021, , 1.	1.1	4
60	A coupling strategy for a first 3D-1D model of the cardiovascular system to study the effects of pulse wave propagation on cardiac function. Computational Mechanics, 2022, 70, 703-722.	2.2	4
61	Reply to 'Cord clamp insult may predispose to SIDS'. Early Human Development, 2010, 86, 67.	0.8	3
62	Optimising the Windkessel model for cardiac output monitoring during changes in vascular tone. , 2014, 2014, 3759-62.		3
63	Recruitment Pattern in a Complete Cerebral Arterial Circle. Journal of Biomechanical Engineering, 2015, 137, 111004.	0.6	3
64	A new method for quantification of aortic stiffness in vivo using magnetic resonance elastography (MRE): a translational study from sequence design to implementation in patients. Journal of Cardiovascular Magnetic Resonance, 2015, 17, .	1.6	3
65	Measuring Vascular Recovery Rate After Exercise. Proceedings (mdpi), 2018, 4, .	0.2	3
66	Alzheimerâ€™s Disease: A Step Towards Prognosis Using Smart Wearables. Proceedings (mdpi), 2019, 4, 8.	0.2	3
67	Relationship between fiducial points on the peripheral and central blood pressure waveforms: rate of rise of the central waveform is a determinant of peripheral systolic blood pressure. American Journal of Physiology - Heart and Circulatory Physiology, 2021, 320, H1601-H1608.	1.5	3
68	One-dimensional computational model of pulse wave propagation in the human bronchial tree. , 2010, 2010, 2473-6.		2
69	An Integrated Software Application for Non-invasive Assessment of Local Aortic Haemodynamic Parameters. Procedia Computer Science, 2016, 90, 2-8.	1.2	2
70	P164 INDICES TO ASSESS AORTIC STIFFNESS FROM THE FINGER PHOTOPLETHYSMOGRAM: IN SILICO AND IN VIVO TESTING. Artery Research, 2018, 24, 128.	0.3	2
71	Comment on â€˜Numerical assessment and comparison of pulse wave velocity methods aiming at measuring aortic stiffnessâ€™. Physiological Measurement, 2018, 39, 078001.	1.2	2
72	Using Smart Wearables to Monitor Cardiac Ejection. Proceedings (mdpi), 2018, 4, .	0.2	2

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73	YI 1.8 A Computational Model-Based Study on the Effect of Abdominal Aortic Aneurysm on Pulse Wave Morphology. Artery Research, 2020, 26, S10-S11.	0.3	2
74	Validation of Algorithms for the Estimation of Pulse Transit Time: Where do We Stand Today? Response to Commentaries by Papaioannou et al.. Annals of Biomedical Engineering, 2014, 42, 1145-1147.	1.3	1
75	The Relationship between Velocity and Cerebral Resistance during Vasomotor Reactivity Testing: Should We Report a Different Measurement?. Journal for Vascular Ultrasound, 2008, 32, 67-74.	0.2	0
76	8.3 QUANTIFYING HEART AND ARTERIAL CONTRIBUTIONS TO CENTRAL BLOOD PRESSURE IN SYSTOLE. Artery Research, 2016, 16, 65.	0.3	0
77	P32 DETERMINING CARDIAC AND ARTERIAL CONTRIBUTIONS TO CENTRAL PULSE PRESSURE. Artery Research, 2018, 24, 88.	0.3	0