James Woodcock

List of Publications by Year
in descending order

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145 papers	2,802 citations	279487 23 h-index	233125 45 g-index
163 all docs	163 docs citations	163 times ranked	1024 citing authors

#	Article	IF	Citations
1	Probabilistic modelling and verification using RoboChart and PRISM. Software and Systems Modeling, 2022, 21, 667-716.	2.2	12
2	Verification of Co-simulation Algorithms Subject to Algebraic Loops and Adaptive Steps. Lecture Notes in Computer Science, 2021, , 3-20.	1.0	4
3	Uncertainty Quantification and Runtime Monitoring Using Environment-Aware Digital Twins. Lecture Notes in Computer Science, 2021, , 72-87.	1.0	12
4	RiskStructures: A design algebra for risk-aware machines. Formal Aspects of Computing, 2021, 33, 763-802.	1.4	4
5	Automated verification of reactive and concurrent programs by calculation. Journal of Logical and Algebraic Methods in Programming, 2021, 121, 100681.	0.4	2
6	Automated Reasoning for Probabilistic Sequential Programs with Theorem Proving. Lecture Notes in Computer Science, 2021, , 465-482.	1.0	3
7	Hoare and Heâ€™s Unifying Theories of Programming. , 2021, , 285-316.		3
8	RoboStar Technology: Modelling Uncertainty in RoboChart Using Probability. , 2021, , 413-465.		1
9	New Opportunities for Integrated Formal Methods. ACM Computing Surveys, 2020, 52, 1-36.	16.1	21
10	Unifying theories of reactive design contracts. Theoretical Computer Science, 2020, 802, 105-140.	0.5	22
11	Unifying semantic foundations for automated verification tools in Isabelle/UTP. Science of Computer Programming, 2020, 197, 102510.	1.5	19
12	Compositional Assume-Guarantee Reasoning of Control Law Diagrams Using UTP. Emergence, Complexity and Computation, 2020, , 215-254.	0.2	3
13	Development Automation of Real-Time Java. Transactions on Embedded Computing Systems, 2020, 19, 1-26.	2.1	1
14	RoboChart: modelling and verification of the functional behaviour of robotic applications. Software and Systems Modeling, 2019, 18, 3097-3149.	2.2	73
15	Probabilistic Semantics for RoboChart. Lecture Notes in Computer Science, 2019, , 80-105.	1.0	7
16	A Calculus of Space, Time, and Causality: Its Algebra, Geometry, Logic. Lecture Notes in Computer Science, 2019, , 3-21.	1.0	2
17	Unifying theories of time with generalised reactive processes. Information Processing Letters, 2018, 135, 47-52.	0.4	18
18	From Formalised State Machines to Implementations of Robotic Controllers. Springer Proceedings in Advanced Robotics, 2018, , 517-529.	0.9	4

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19	Automating Verification of State Machines with Reactive Designs and Isabelle/UTP. Lecture Notes in Computer Science, 2018, , 137-155.	1.0	15
20	Features of Integrated Model-Based Co-modelling and Co-simulation Technology. Lecture Notes in Computer Science, 2018, , 377-390.	1.0	18
21	Calculational Verification of Reactive Programs with Reactive Relations and Kleene Algebra. Lecture Notes in Computer Science, 2018, , 205-224.	1.0	6
22	Model checking of state-rich formalism by linking to $$CSP,Vert ,B$$ C S P â€– B. International Journal on Software Tools for Technology Transfer, 2017, 19, 73-96.	1.7	4
23	What can agile methods bring to high-integrity software development?. Communications of the ACM, 2017, 60, 38-41.	3.3	10
24	Sound Simulation and Co-simulation for Robotics. , 2017, , 173-194.		1
25	Towards Verification of Cyber-Physical Systems with UTP and Isabelle/HOL. Lecture Notes in Computer Science, 2017, , 39-64.	1.0	5
26	Towards a UTP Semantics for Modelica. Lecture Notes in Computer Science, 2017, , 44-64.	1.0	12
27	UTP Semantics of Reactive Processes with Continuations. Lecture Notes in Computer Science, 2017, , 114-133.	1.0	1
28	Java in the Safety-Critical Domain. Lecture Notes in Computer Science, 2017, , 110-150.	1.0	2
29	UTP by Example: Designs. Lecture Notes in Computer Science, 2017, , 16-50.	1.0	1
30	A Stepwise Approach to Linking Theories. Lecture Notes in Computer Science, 2017, , 134-154.	1.0	1
31	Integrated tool chain for model-based design of Cyber-Physical Systems: The INTO-CPS project. , 2016, , .		74
32	Mobile CSP. Lecture Notes in Computer Science, 2016, , 39-55.	1.0	3
33	Behavioural Models for FMI Co-simulations. Lecture Notes in Computer Science, 2016, , 255-273.	1.0	7
34	Unifying Heterogeneous State-Spaces with Lenses. Lecture Notes in Computer Science, 2016, , 295-314.	1.0	17
35	Towards Semantically Integrated Models and Tools for Cyber-Physical Systems Design. Lecture Notes in Computer Science, 2016, , 171-186.	1.0	17
36	Checking SysML Models for Co-simulation. Lecture Notes in Computer Science, 2016, , 450-465.	1.0	10

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37	Heterogeneous Semantics and Unifying Theories. Lecture Notes in Computer Science, 2016, , 374-394.	1.0	4
38	Refinement-Based Verification of the FreeRTOS Scheduler in VCC. Lecture Notes in Computer Science, 2015, , 170-186.	1.0	4
39	Using formal reasoning on a model of tasks for FreeRTOS. Formal Aspects of Computing, 2015, 27, 167-192.	1.4	10
40	Systems of Systems Engineering. ACM Computing Surveys, 2015, 48, 1-41.	16.1	297
41	Cyber-Physical Systems Design: Formal Foundations, Methods and Integrated Tool Chains. , 2015, , .		33
42	Isabelle/UTP: A Mechanised Theory Engineering Framework. Lecture Notes in Computer Science, 2015, , 21-41.	1.0	37
43	CSP and Kripke Structures. Lecture Notes in Computer Science, 2015, , 505-523.	1.0	4
44	Three Approaches to Timed External Choice in UTP. Lecture Notes in Computer Science, 2015, , 1-20.	1.0	2
45	Adapting FreeRTOS for multicores: an experience report. Software - Practice and Experience, 2014, 44, 1129-1154.	2.5	8
46	An approach for managing semantic heterogeneity in Systems of Systems Engineering. , 2014, , .		3
47	Test-data generation for control coverage by proof. Formal Aspects of Computing, 2014, 26, 795-823.	1.4	1
48	Foundations for Model-Based Engineering of Systems of Systems. , 2014, , 1-19.		15
49	A Refinement Based Strategy for Local Deadlock Analysis of Networks of CSP Processes. Lecture Notes in Computer Science, 2014, , 62-77.	1.0	14
50	Engineering UToPiA. Lecture Notes in Computer Science, 2014, , 22-41.	1.0	9
51	Contracts in CML. Lecture Notes in Computer Science, 2014, , 54-73.	1.0	2
52	Safety-critical Java programs from Circus models. Real-Time Systems, 2013, 49, 614-667.	1.1	21
53	Modelling temporal behaviour in complex systems with Timebands. Formal Methods in System Design, 2013, 43, 520-551.	0.9	2
54	The Safety-Critical Java memory model formalised. Formal Aspects of Computing, 2013, 25, 37-57.	1.4	19

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55	Unifying theories in ProofPower-Z. Formal Aspects of Computing, 2013, 25, 133-158.	1.4	23
56	Industrial Deployment of Formal Methods: Trends and Challenges. , 2013, , 123-143.		10
57	Unifying Theories of Programming in Isabelle. Lecture Notes in Computer Science, 2013, , 109-155.	1.0	11
58	Unifying Theories of Undefinedness in UTP. Lecture Notes in Computer Science, 2013, , 1-22.	1.0	3
59	A Verified Protocol to Implement Multi-way Synchronisation and Interleaving in CSP. Lecture Notes in Computer Science, 2013, , 46-60.	1.0	2
60	Unifying Theories of Logic and Specification. Lecture Notes in Computer Science, 2013, , 18-33.	1.0	3
61	Circus Time with Reactive Designs. Lecture Notes in Computer Science, 2013, , 68-87.	1.0	14
62	Simulink Timed Models for Program Verification. Lecture Notes in Computer Science, 2013, , 82-99.	1.0	6
63	Mechanised wire-wise verification of Handel-C synthesis. Science of Computer Programming, 2012, 77, 424-443.	1.5	4
64	Modelling Temporal Behaviour in Complex Systems with Timebands. , 2012, , 277-307.		1
65	A Plug-in Based Approach for UML Model Simulation. Lecture Notes in Computer Science, 2012, , 328-339.	1.0	0
66	Using Model Transformation to Generate Graphical Counter-Examples for the Formal Analysis of xUML Models. , 2011, , .		6
67	Correct hardware synthesis. Acta Informatica, 2011, 48, 363-396.	0.5	3
68	Safety-critical Java in Circus. , 2011, , .		16
69	Timed Circus: Timed CSP with the Miracle. , 2011, , .		7
70	The Safety-Critical Java Memory Model: A Formal Account. Lecture Notes in Computer Science, 2011, , 246-261.	1.0	14
71	A Timed Model of Circus with the Reactive Design Miracle. , 2010, , .		6
72	Modelling and Implementing Complex Systems with Timebands. , 2010, , .		1

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73	The Tokeneer Experiments. , 2010, , 405-430.		10
74	The Miracle of Reactive Programming. Lecture Notes in Computer Science, 2010, , 202-217.	1.0	10
75	UTP Semantics for Handel-C. Lecture Notes in Computer Science, 2010, , 142-160.	1.0	9
76	The Use of Model Transformation in the INESS Project. Lecture Notes in Computer Science, 2010, , 147-165.	1.0	2
77	Programming Phase: Formal Methods. , 2010, , 772-785.		0
78	Verifying the CICS File Control API with Z/Eves: An experiment in the verified software repository. Science of Computer Programming, 2009, 74, 197-218.	1.5	9
79	Mechanising a formal model of flash memory. Science of Computer Programming, 2009, 74, 219-237.	1.5	23
80	Mechanised Wire-wise Verification of Handel-C Synthesis. Electronic Notes in Theoretical Computer Science, 2009, 240, 201-219.	0.9	1
81	A UTP semantics for Circus. Formal Aspects of Computing, 2009, 21, 3-32.	1.4	102
82	FDR Explorer. Formal Aspects of Computing, 2009, 21, 133-154.	1.4	3
83	POSIX file store in Z/Eves: An experiment in the verified software repository. Science of Computer Programming, 2009, 74, 238-257.	1.5	13
84	Putting Formal Specifications under the Magnifying Glass: Model-based Testing for Validation. , 2009, , .		10
85	Formal methods. ACM Computing Surveys, 2009, 41, 1-36.	16.1	436
86	Automation of Model-Based Testing through Model Transformations. , 2009, , .		2
87	State Visibility and Communication in Unifying Theories of Programming. , 2009, , .		6
88	Mechanising Mondex with Z/Eves. Formal Aspects of Computing, 2008, 20, 117-139.	1.4	24
89	The certification of the Mondex electronic purse to ITSEC Level E6. Formal Aspects of Computing, 2008, 20, 5-19.	1.4	29
90	POSIX and the Verification Grand Challenge: A Roadmap. , 2008, , .		13

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91	Linking VDM and Z. , 2008, , .		5
92	Observations for Assertion-based Scenarios in the context of Model Validation and Extension to Test Case Generation. , 2008, , .		1
93	A Comparison of State-Based Modelling Tools for Model Validation. Lecture Notes in Business Information Processing, 2008, , 278-296.	0.8	9
94	A Theory of Pointers for the UTP. Lecture Notes in Computer Science, 2008, , 141-155.	1.0	25
95	POSIX file store in Z/Eves: an experiment in the verified software repository. , 2007, , .		13
96	Formalising Flash Memory: First Steps. , 2007, , .		20
97	Verifying the CICS File Control API with Z/Eves: An Experiment in the Verified Software Repository. , 2007, , .		0
98	A Denotational Semantics for Circus. Electronic Notes in Theoretical Computer Science, 2007, 187, 107-123.	0.9	25
99	FDR Explorer. Electronic Notes in Theoretical Computer Science, 2007, 187, 19-34.	0.9	2
100	Evaluation of OCL for Large-Scale Modelling: A Different View of the Mondex Purse. Lecture Notes in Computer Science, 2007, , 194-205.	1.0	1
101	Slotted-Circus. Lecture Notes in Computer Science, 2007, , 75-97.	1.0	23
102	Proving Theorems About JML Classes. , 2007, , 255-279.		3
103	A Denotational Semantics for Handel-C Hardware Compilation. Lecture Notes in Computer Science, 2007, , 266-285.	1.0	6
104	Automatic Generation of Verified Concurrent Hardware. Lecture Notes in Computer Science, 2007, , 286-306.	1.0	5
105	First Steps in the Verified Software Grand Challenge. 2011 IEEE 34th Software Engineering Workshop, 2006, , .	0.0	19
106	The verified software repository: a step towards the verifying compiler. Formal Aspects of Computing, 2006, 18, 143-151.	1.4	31
107	Angelic nondeterminism in the unifying theories of programming. Formal Aspects of Computing, 2006, 18, 288-307.	1.4	26
108	A â€œHardware Compilerâ€•Semantics for Handel-C. Electronic Notes in Theoretical Computer Science, 2006, 161, 73-90.	0.9	5

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109	State-rich model checking. Innovations in Systems and Software Engineering, 2006, 2, 49-64.	1.6	6
110	Pointers and Records in the Unifying Theories of Programming. Lecture Notes in Computer Science, 2006, , 200-216.	1.0	10
111	Unifying Theories in ProofPower-Z. Lecture Notes in Computer Science, 2006, , 123-140.	1.0	18
112	Taking Our Own Medicine: Applying the Refinement Calculus to State-Rich Refinement Model Checking. Lecture Notes in Computer Science, 2006, , 697-716.	1.0	6
113	Z/Eves and the Mondex Electronic Purse. Lecture Notes in Computer Science, 2006, , 15-34.	1.0	8
114	Mechanising a Unifying Theory. Lecture Notes in Computer Science, 2006, , 217-235.	1.0	8
115	Operational Semantics for Model Checking Circus. Lecture Notes in Computer Science, 2005, , 237-252.	1.0	13
116	Angelic Nondeterminism and Unifying Theories of Programming. Electronic Notes in Theoretical Computer Science, 2005, 137, 45-66.	0.9	3
117	Unifying classes and processes. Software and Systems Modeling, 2005, 4, 277-296.	2.2	35
118	prialt in Handel-C: an operational semantics. International Journal on Software Tools for Technology Transfer, 2005, 7, 248-267.	1.7	11
119	Formal development of industrial-scale systems in Circus. Innovations in Systems and Software Engineering, 2005, 1, 125-146.	1.6	9
120	Mechanising the Alphabetised Relational Calculus. Electronic Notes in Theoretical Computer Science, 2004, 95, 209-225.	0.9	11
121	A Tutorial Introduction to Designs in Unifying Theories of Programming. Lecture Notes in Computer Science, 2004, , 40-66.	1.0	31
122	Travelling Processes. Lecture Notes in Computer Science, 2004, , 381-399.	1.0	13
123	ArcAngel: a Tactic Language for Refinement. Formal Aspects of Computing, 2003, 15, 28-47.	1.4	31
124	A Refinement Strategy for Circus. Formal Aspects of Computing, 2003, 15, 146-181.	1.4	105
125	Semantic Domains for Handel-C. Electronic Notes in Theoretical Computer Science, 2003, 74, 1-20.	0.9	16
126	An Operational Semantics for Handel-C1 1Handel-C is the registered trademark of Celoxica Ltd (www.celoxica.com). Electronic Notes in Theoretical Computer Science, 2003, 80, 235-250.	0.9	3

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127	The Semantics of Circus. Lecture Notes in Computer Science, 2002, , 184-203.	1.0	126
128	Refinement of Actions in Circus,. Electronic Notes in Theoretical Computer Science, 2002, 70, 132-162.	0.9	12
129	Unifying Theories of Parallel Programming. Lecture Notes in Computer Science, 2002, , 24-37.	1.0	14
130	Refinement in Circus. Lecture Notes in Computer Science, 2002, , 451-470.	1.0	34
131	A Concurrent Language for Refinement. , 2001, , .		37
132	Title is missing!. Formal Methods in System Design, 2000, 17, 199-200.	0.9	0
133	The First World Congress on Formal Methods in the Development of Computing Systems. Formal Aspects of Computing, 2000, 12, 145-146.	1.4	2
134	An inconsistency in procedures, parameters, and substitution in the refinement calculus. Science of Computer Programming, 1999, 33, 87-96.	1.5	14
135	ZRC â€“ A Refinement Calculus for Z. Formal Aspects of Computing, 1998, 10, 267-289.	1.4	43
136	A Weakest Precondition Semantics for Z. Computer Journal, 1998, 41, 1-15.	1.5	22
137	More Powerful Z Data Refinement: Pushing the State of the Art in Industrial Refinement. Lecture Notes in Computer Science, 1998, , 284-307.	1.0	33
138	Procedures and Recursion in the Refinement Calculus. Journal of the Brazilian Computer Society, 1998, 5, 00-00.	0.8	7
139	Non-interference through determinism*. Journal of Computer Security, 1996, 4, 27-53.	0.5	31
140	A tactic calculus â€” abridged version. Formal Aspects of Computing, 1996, 8, 479-489.	1.4	29
141	Software engineering research directions. ACM Computing Surveys, 1996, 28, 128.	16.1	0
142	Event refinement in state-based concurrent systems. Formal Aspects of Computing, 1995, 7, 266-288.	1.4	4
143	The Rudiments of Algorithm Refinement. Computer Journal, 1992, 35, 441-450.	1.5	12
144	Towards the formal specification of a simple programming support environment. Software Engineering Journal, 1987, 2, 86.	0.7	4

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145	ABZ2008 VSR-Net Workshop. Lecture Notes in Computer Science, 0, , 378-379.	1.0	0