

Alois Zoitl

List of Publications by Year in descending order

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171
papers

2,455
citations

623734

14
h-index

501196

28
g-index

179
all docs

179
docs citations

179
times ranked

844
citing authors

#	ARTICLE	IF	CITATIONS
1	Toward Self-Reconfiguration of Manufacturing Systems Using Automation Agents. IEEE Transactions on Systems, Man and Cybernetics, Part C: Applications and Reviews, 2011, 41, 52-69.	2.9	147
2	Framework for Distributed Industrial Automation and Control (4DIAC). , 2008, , .		76
3	Integration of heterogeneous engineering environments for the automation systems lifecycle. , 2009, , .		67
4	Guidelines and Patterns for Building Hierarchical Automation Solutions in the IEC 61499 Modeling Language. IEEE Transactions on Industrial Informatics, 2013, 9, 2387-2396.	11.3	67
5	Usability and Interoperability of IEC 61499 based distributed automation systems. , 2006, , .		62
6	Different perspectives [Face to face; "IEC 61499 architecture for distributed automation: The "glass half full" view. IEEE Industrial Electronics Magazine, 2009, 3, 7-23.	2.6	61
7	Design and Execution Issues in IEC 61499 Distributed Automation and Control Systems. IEEE Transactions on Systems, Man and Cybernetics, Part C: Applications and Reviews, 2011, 41, 41-51.	2.9	57
8	Modelling Control Systems Using IEC 61499. , 2014, , .		56
9	Developments in dynamic and intelligent reconfiguration of industrial automation. Computers in Industry, 2008, 59, 533-547.	9.9	52
10	Open source initiatives as basis for the establishment of new technologies in industrial automation: 4DIAC a case study. , 2010, , .		48
11	Modular Fault Ascription and Corrective Maintenance Using a Digital Twin. IFAC-PapersOnLine, 2018, 51, 1041-1046.	0.9	48
12	Functional structure-based modelling of automation systems. International Journal of Manufacturing Research, 2006, 1, 405.	0.2	42
13	Skill-based Engineering Approach using OPC UA Programs. , 2018, , .		42
14	Zero Downtime Reconfiguration of Distributed Automation Systems: The ÎµCEDAC Approach. Lecture Notes in Computer Science, 2007, , 326-337.	1.3	42
15	Capability-based planning and scheduling for adaptable manufacturing systems. , 2014, , .		41
16	Test case generation approach for industrial automation systems. , 2011, , .		36
17	Is IEC 61499 in harmony with IEC 61131-3?. IEEE Industrial Electronics Magazine, 2009, 3, 49-55.	2.6	34
18	Monitoring and diagnostics of industrial systems using automation agents. International Journal of Production Research, 2011, 49, 1497-1509.	7.5	34

#	ARTICLE	IF	CITATIONS
19	Integrating software agents and IEC 61499 realtime control for reconfigurable distributed manufacturing systems. , 2008, , .		32
20	Executing real-time constrained control applications modelled in IEC 61499 with respect to dynamic reconfiguration. , 0, , .		31
21	Considering IEC 61131-3 and IEC 61499 in the context of component frameworks. , 2008, , .		31
22	The adaptation of test-driven software processes to industrial automation engineering. , 2010, , .		31
23	Developing modular reusable IEC 61499 control applications with 4DIAC. , 2013, , .		31
24	IEC 61499 based simulation framework for model-driven production systems development. , 2010, , .		29
25	Challenges to Industry Adoption of the IEC 61499 Standard on Event-based Function Blocks. , 2007, , .		27
26	Agile testing concepts based on keyword-driven testing for industrial automation systems. , 2012, , .		27
27	Towards OPC UA as portable SOA middleware between control software and external added value applications. , 2012, , .		27
28	Towards an industry 4.0 compliant control software architecture using IEC 61499 & OPC UA. , 2017, , .		25
29	OPC UA for plug & produce: Automatic device discovery using LDS-ME. , 2017, , .		25
30	Transformation of IEC 61131-3 to IEC 61499 based on a model driven development approach. , 2009, , .		24
31	Automation component architecture for the efficient development of industrial automation systems. , 2010, , .		24
32	Dynamic reconfiguration of distributed control applications with reconfiguration services based on IEC 61499. , 2006, , .		23
33	Enhanced real-time execution of modular control software based on IEC 61499. , 0, , .		23
34	Execution Models for the IEC 61499 elements Composite Function Block and Subapplication. , 2007, , .		23
35	Version management and conflict detection across heterogeneous engineering data models. , 2010, , .		23
36	Connecting PLCs With Their Asset Administration Shell For Automatic Device Configuration. , 2018, , .		23

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37	Device adapter concept towards enabling plug&produce production environments. , 2017, , .		22
38	Towards Mastering Variability in Software-Intensive Cyber-Physical Production Systems. Procedia Computer Science, 2021, 180, 50-59.	2.0	22
39	A reconfigurable communication gateway for distributed embedded control systems. , 2012, , .		21
40	Formal Verification of Downtimeless System Evolution in Embedded Automation Controllers. Transactions on Embedded Computing Systems, 2013, 12, 1-17.	2.9	20
41	Behavioral type-based monitoring for IEC 61499. , 2015, , .		20
42	Platforms for Scalable Flexible Automation Considering the Concepts of IEC 61499. , 2002, , 237-246.		19
43	Modeling production workflows in a mass customization era. , 2015, , .		18
44	Development and adaptation of IEC 61499 automation and control applications with runtime variability models. , 2009, , .		17
45	IEC 61499 Distributed Design Patterns. , 2021, , .		16
46	Automated code generation for programmable logic controllers based on knowledge acquisition from engineering artifacts: Concept and case study. , 2012, , .		15
47	Towards Engineering Methods for Reconfiguration of Distributed Real-Time Control Systems Based on the Reference Model of IEC 61499. Lecture Notes in Computer Science, 2005, , 165-175.	1.3	14
48	Hierarchical Control Modelling Architecture for Modular Distributed Automation Systems. , 2006, , .		14
49	A research roadmap for model-driven design of embedded systems for automation components. , 2009, , .		14
50	Ontology-based fault diagnosis for industrial control applications. , 2010, , .		14
51	A unit-test framework for event-driven control components modeled in IEC 61499. , 2014, , .		14
52	Towards Reconfiguration Applications as basis for Control System Evolution in Zero-downtime Automation Systems. , 2006, , 523-528.		14
53	A survey of distributed intelligence in automation in European industry, research and market. , 2008, , .		13
54	Real-time communication for IEC 61499 in switched Ethernet networks. , 2010, , .		13

#	ARTICLE	IF	CITATIONS
55	Intuitive control engineering for mechatronic components in distributed automation systems based on the reference model of IEC 61499. , 0, , .		12
56	Re-use of IEC 61131-3 Structured Text for IEC 61499. , 2012, , .		12
57	Verification of hierarchical IEC 61499 component systems with behavioral event contracts. , 2013, , .		12
58	A model based engineering tool for ROS component compositioning, configuration and generation of deployment information. , 2016, , .		12
59	Agile Operational Behavior for the Control-Level Devices in Plug&Produce Production Environments. , 2019, , .		12
60	Usability of Multi-agent Based Control Systems in Industrial Automation. Lecture Notes in Computer Science, 2009, , 25-36.	1.3	12
61	Advanced use of PLCopen motion control library for autonomous servo drives in IEC 61499 based automation and control systems. Elektrotechnik Und Informationstechnik, 2006, 123, 191-196.	1.1	11
62	A real-time reconfiguration infrastructure for distributed embedded control systems. , 2010, , .		11
63	Improved communication model for an IEC 61499 runtime environment. , 2011, , .		11
64	Distributed online change for IEC 61499. , 2011, , .		11
65	Towards an increased reusability of distributed control applications modeled in IEC 61499. , 2012, , .		11
66	Fault Handling in Discrete Event Systems Applied to IEC 61499. , 2020, , .		11
67	Knowledge-based Multi-agent Architecture. , 2006, , .		10
68	Using the CIP Protocol with IEC 61499 Communication Function Blocks. Industrial Informatics, 2009 INDIN 2009 7th IEEE International Conference on, 2007, , .	0.0	10
69	Semantic correct transformation of IEC 61131-3 models into the IEC 61499 standard. , 2009, , .		10
70	Utilizing IEC 61499 in an MDA control application development approach. , 2011, , .		10
71	Engineering of automation systems using a metamodel implemented in AutomationML. , 2016, , .		10
72	A Service Bus Concept for Modular and Adaptable PLC-Software. , 2020, , .		10

#	ARTICLE	IF	CITATIONS
73	Towards Multidisciplinary Delta-Oriented Variability Management in Cyber-Physical Production Systems. , 2022, , .		10
74	Towards Zero-downtime Evolution of Distributed Control Applications via Evolution Control based on IEC 61499. , 2006, , .		9
75	Model-driven engineering of networked industrial automation systems. , 2010, , .		9
76	Online reconfiguration of the low level control for automation agents. , 2010, , .		9
77	Product-Driven Generation of Action Sequences for Adaptable Manufacturing Systems. IFAC-PapersOnLine, 2015, 48, 1502-1508.	0.9	9
78	A Comparison of Formal Verification Approaches for IEC 61499. , 2016, , .		9
79	Evaluating software-defined networking for deterministic communication in distributed industrial automation systems. , 2017, , .		9
80	Requirements for a dynamic interface model of IEC 61499 Function Blocks. , 2020, , .		9
81	Generation of the Orchestrator Code for Skill-Based Automation Systems. , 2021, , .		9
82	Catalog of Refactoring Operations for IEC 61499. , 2021, , .		9
83	Structuring of large scale distributed control programs with IEC 61499 subapplications and a hierarchical plant structure model. , 2008, , .		8
84	Cloud Based Monitoring of Timed Events for Industrial Automation. , 2015, , .		8
85	Towards semantic self-description of industrial devices and control system interfaces. , 2016, , .		8
86	Benchmarking of IEC 61499 runtime environments. , 2007, , .		7
87	Intelligent-agent based approach for assembly automation. , 2008, , .		7
88	An engineering method for batch process automation using a component oriented design based on IEC 61499. , 2008, , .		7
89	Improving Component Testing of Industrial Automation Software. , 2009, , .		7
90	Utilizing binary XML representations for improving the performance of the IEC 61499 configuration interface. , 2009, , .		7

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91	Component-based simulation framework for production systems. , 2010, , .		7
92	Building hierarchical automation solutions in the IEC 61499 modeling language. , 2011, , .		7
93	Ontology-driven automated software configuration for manufacturing system components. , 2011, , .		7
94	Design patterns for separating fault handling from control code in discrete manufacturing systems. , 2013, , .		7
95	Increasing control application reusability through generic device configuration model. , 2017, , .		7
96	Assessing the Usefulness of a Visual Programming IDE for Large-Scale Automation Software. , 2021, , .		7
97	Enhanced IEC 61499 Device Management Execution and Usage for Downtimeless Reconfiguration. , 2007, , .		6
98	Integration of simulation in the development process of distributed IEC 61499 control applications. , 2009, , .		6
99	Towards flexible and adaptive productions systems based on virtual cloud-based control. , 2014, , .		6
100	Optimizing schedules for adaptable manufacturing systems. , 2015, , .		6
101	Remote monitoring infrastructure for IEC 61499 based control software. , 2016, , .		6
102	Behavior modeling of automation components using cross-domain interdependencies. , 2016, , .		6
103	Towards an integrated plant engineering process using a data conversion tool for AutomationML. , 2017, , .		6
104	AutomationML Mechatronic Models as Enabler of Automation Systems Engineering: Use-case and Evaluation. , 2018, , .		6
105	Automated Test Case Generation for Industrial Control Applications. Studies in Computational Intelligence, 2013, , 263-273.	0.9	6
106	A Model-based Execution Framework for Interpreting Control Software. , 2021, , .		6
107	Messaging Interaction Patterns for a Service Bus Concept of PLC-Software. , 2021, , .		6
108	Modelling Execution Order and Real-time Constraints in IEC 61499 Control Applications. , 0, , .		5

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109	A Distributed Energy Management Approach for Autonomous Power Supply Systems. , 2007, , .		5
110	A Device and Resource Execution Model for IEC 61499 Control Devices. , 2007, , .		5
111	Increasing portability and reuseability of distributed control programs by I/O access abstraction. , 2010, , .		5
112	A human in the loop corrective maintenance methodology using cross domain engineering data of mechatronic systems. , 2016, , .		5
113	Granularity Cost Analysis for Function Block as a Service. , 2019, , .		5
114	Usability of Development Tools: A CASE-Study. , 2019, , .		5
115	Distributed implementation of Grafccets through IEC 61499. , 2020, , .		5
116	Service Granularity in Industrial Automation and Control Systems. , 2020, , .		5
117	A Design Pattern for Monitoring Adapter Connections in IEC 61499. , 2021, , .		5
118	A Novel Approach for Integrating IEC 61131-3 Engineering and Execution Into IEC 61499. IEEE Transactions on Industrial Informatics, 2021, 17, 5411-5418.	11.3	5
119	Towards heterogeneous multi-dimensional variability modeling in cyber-physical production systems. , 2021, , .		5
120	IEC 61499 Runtime Environments: A State of the Art Comparison. Lecture Notes in Computer Science, 2020, , 453-460.	1.3	5
121	Production Plan-Driven Flexible Assembly Automation Architecture. Lecture Notes in Computer Science, 2013, , 49-58.	1.3	5
122	Modelling Real-time Constraints Regarding Reconfiguration Aspects for IEC 61499 Control Applications. , 2007, , .		4
123	Ontology-based resource allocation in distributed systems using director facilitator agents. , 2008, , .		4
124	Conjunction of a distributed control system based on IEC 61499 with a commercial batch management system. , 2009, , .		4
125	Engineering of communication links with AADL in IEC 61499 automation and control systems. , 2009, , .		4
126	Model-driven communication routing in industrial automation and control systems. , 2010, , .		4

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127	Industrial embedded model predictive controller platform. , 2011, , .		4
128	IEC 61131-3 model for model-driven development. , 2012, , .		4
129	Semantic Runtime Interface Description Based on Engineering Knowledge. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2012, 45, 805-810.	0.4	4
130	Standardized Dynamic Reconfiguration of Control Applications in Industrial Systems. International Journal of Applied Industrial Engineering, 2014, 2, 57-73.	0.5	4
131	Enable Co-Simulation for Industrial Automation by an FMU Exporter for IEC 61499 Models. , 2018, , .		4
132	Towards Service Deployment and Composition in Industry 4.0. , 2021, , .		4
133	Towards Delta-Oriented Variability Modeling for IEC 61499. , 2021, , .		4
134	An Execution Environment for Real-Time Constrained Control Software based on IEC 61499. , 2007, , .		3
135	Knowledge-based multi-agent architecture for dynamic scheduling in manufacturing systems. , 2008, , .		3
136	IEC 61131-3 control applications vs. control applications transformed in IEC 61499. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2010, 43, 30-35.	0.4	3
137	Using EtherNet/IP with IEC 61499 Communication Function Blocks. Lecture Notes in Computer Science, 2011, , 39-49.	1.3	3
138	System requirements in industrial automation. , 2013, , .		3
139	Increasing the adaptability of manufacturing systems by using data-centric communication. , 2014, , .		3
140	An Approach for an Automated Adaption of KPI Ontologies by Reusing Systems Engineering Data. , 2019, , .		3
141	Smart Transducers in Distributed and Model-Driven Control Applications: Empowering Seamless Internet of Things Integration. IEEE Industrial Electronics Magazine, 2019, 13, 57-64.	2.6	3
142	Guest Editorial: Special issue on industrial applications of distributed intelligent systems. IEEE Transactions on Systems, Man, and Cybernetics: Systems, 2014, 44, 261-262.	9.3	2
143	Distributed Real-Time Automation and Control - Reactive Control Layer for Industrial Agents. , 2015, , 89-107.		2
144	Handling errors in dynamic production environments. , 2016, , .		2

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145	Generating metamodel-based descriptions of automation components in AutomationML. , 2017, , .		2
146	Zero-Downtime Reconfiguration of Distributed Control Logic in Industrial Automation and Control. , 2011, , 55-81.		2
147	Extraction of Automation System Engineering Knowledge for Mapping Plant and Simulation Interfaces. Studies in Computational Intelligence, 2013, , 247-261.	0.9	2
148	EVOLUTION CONTROL ENVIRONMENT FOR DISTRIBUTED AUTOMATION COMPONENTS. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2007, 40, 241-246.	0.4	1
149	Integration of a Distributed Control System based on IEC 61499 with Industrial Batch Management Systems. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2009, 42, 686-691.	0.4	1
150	FRONTICS - A Communication Framework for Networked Automation and Control Systems*. IFAC Postprint Volumes IPPV / International Federation of Automatic Control, 2010, 43, 12-17.	0.4	1
151	Engineering process for an online testing process of control software in production systems. , 2011, , .		1
152	Developing a monitoring infrastructure for IEC 61499 devices. , 2013, , .		1
153	Implementation guidelines for closed loop control algorithms on PLCs. , 2013, , .		1
154	Adaptable Capability-Based Planning. IFAC-PapersOnLine, 2015, 48, 1204-1209.	0.9	1
155	Modeling and verifying behavioral constraints for automation systems. , 2017, , .		1
156	Interoperability and Integration in Future Production Systems. , 2018, , .		1
157	Planning and Engineering Component-Based Automation Systems in AutomationML. , 2019, , .		1
158	Communication Aspects of IEC 61499 Architecture. The Electrical Engineering Handbook, 2011, , 1-22.	0.2	1
159	Hierarchically Structured Control Application for Pick and Place Station. , 2017, , 423-440.		1
160	Standardized Dynamic Reconfiguration of Control Applications in Industrial Systems. , 2019, , 776-793.		1
161	A real-time execution model for IEC 61499 based control applications. , 2006, , 511-516.		1
162	Distributed Implementation of Hierarchical Grafccets through IEC 61499. , 2021, , .		1

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163	Modular assembly machine - ontology based concept. , 2008, , .		0
164	Adaptive and rReconfigurable control framework for the responsive factory. , 2009, , .		0
165	Control software development in Industrial Automation. , 2013, , .		0
166	Toward Batch Process Domain with IEC 61499. Industrial Information Technology Series, 2016, , 443-461.	0.2	0
167	Guest Editorial Information Technology in Automation. IEEE Transactions on Industrial Informatics, 2018, 14, 2745-2747.	11.3	0
168	Enhanced IEC 61499 system model for evolution of control applications in distributed Industrial-Process Measurement and Control Systems. , 2007, , .		0
169	Hierarchically Structured Control Application for Pick and Place Station. Industrial Information Technology Series, 2016, , 423-441.	0.2	0
170	Skill-Based Motion Control with OPC UA and Deterministic Ethernet. Lecture Notes in Computer Science, 2020, , 461-468.	1.3	0
171	Zero-Downtime Reconfiguration of Distributed Control Logic in Industrial Automation and Control. , 0, , 2024-2051.		0