Frank Leymann

List of Publications by Year in descending order

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378 papers 9,488 citations

147566 31 h-index 91712 69 g-index

396 all docs

396 docs citations

396 times ranked

4223 citing authors

#	Article	lF	Citations
1	Standardsâ€based modeling and deployment of serverless function orchestrations using BPMN and TOSCA. Software - Practice and Experience, 2022, 52, 1454-1495.	2.5	6
2	Selection and Optimization of Hyperparameters in Warm-Started Quantum Optimization for the MaxCut Problem. Electronics (Switzerland), 2022, 11, 1033.	1.8	5
3	Analysis and Rewrite of Quantum Workflows: Improving the Execution of Hybrid Quantum Algorithms. , 2022, , .		2
4	On Unifying the Compliance Management of Applications Based on IaC Automation. , 2022, , .		2
5	Continued Fractions and Probability Estimations in Shor's Algorithm: A Detailed and Self-Contained Treatise. AppliedMath, 2022, 2, 393-432.	0.3	3
6	On Decision Support for Quantum Application Developers: Categorization, Comparison, and Analysis of Existing Technologies. Lecture Notes in Computer Science, 2021, , 127-141.	1.0	8
7	Automated Generation of Management Workflows for Running Applications by Deriving and Enriching Instance Models., 2021,,.		3
8	From Serverful to Serverless: A Spectrum of Patterns for Hosting Application Components. , 2021, , .		6
9	Patterns for Hybrid Quantum Algorithms. Communications in Computer and Information Science, 2021, , 34-51.	0.4	7
10	Automating the Deployment of Distributed Applications by Combining Multiple Deployment Technologies., 2021,,.		6
11	Expanding Data Encoding Patterns For Quantum Algorithms. , 2021, , .		23
12	1st Workshop on Quantum Software Architecture (QSA)., 2021,,.		1
13	Automated Quantum Hardware Selection for Quantum Workflows. Electronics (Switzerland), 2021, 10, 984.	1.8	9
14	FaaSten your decisions: A classification framework and technology review of function-as-a-Service platforms. Journal of Systems and Software, 2021, 175, 110906.	3.3	20
15	QProv: A provenance system for quantum computing. IET Quantum Communication, 2021, 2, 171-181.	2.2	8
16	Automating the Comparison of Quantum Compilers for Quantum Circuits. Communications in Computer and Information Science, 2021, , 64-80.	0.4	9
17	SiDD: The Situation-Aware Distributed Deployment System. Lecture Notes in Computer Science, 2021, , 72-76.	1.0	2
18	Hybrid Quantum Applications Need Two Orchestrations in Superposition: A Software Architecture Perspective., 2021,,.		9

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19	MODULO: Modeling, Transformation, and Deployment of Quantum Workflows., 2021, , .		4
20	Encoding patterns for quantum algorithms. IET Quantum Communication, 2021, 2, 141-152.	2.2	23
21	Automated detection of design patterns in declarative deployment models., 2021,,.		1
22	Method, formalization, and algorithms to split topology models for distributed cloud application deployments. Computing (Vienna/New York), 2020, 102, 343-363.	3.2	4
23	Where to begin: on pattern language entry points. Software-Intensive Cyber-Physical Systems, 2020, 35, 127-139.	2.3	2
24	Transactional properties of permissioned blockchains. Software-Intensive Cyber-Physical Systems, 2020, 35, 49-61.	2.3	10
25	The essential deployment metamodel: a systematic review of deployment automation technologies. Software-Intensive Cyber-Physical Systems, 2020, 35, 63-75.	2.3	45
26	Freezing and defrosting cloud applications: automated saving and restoring of running applications. Software-Intensive Cyber-Physical Systems, 2020, 35, 101-114.	2.3	5
27	Pattern-based rewrite and refinement of architectures using graph theory. Software-Intensive Cyber-Physical Systems, 2020, 35, 115-126.	2.3	2
28	Quantum humanities: a vision for quantum computing in digital humanities. Software-Intensive Cyber-Physical Systems, 2020, 35, 153-158.	2.3	8
29	Unified Integration of Smart Contracts Through Service Orientation. IEEE Software, 2020, 37, 60-66.	2.1	9
30	Data Flow Dependent Component Placement of Data Processing Cloud Applications. , 2020, , .		2
31	Quantum Humanities: A First Use Case for Quantum-ML in Media Science. Digitale Welt, 2020, 4, 102-103.	0.3	3
32	Deployable Self-contained Workflow Models. Lecture Notes in Computer Science, 2020, , 85-96.	1.0	10
33	Decentralized Cross-organizational Application Deployment Automation: AnÂApproach for Generating Deployment Choreographies Based on Declarative Deployment Models. Lecture Notes in Computer Science, 2020, , 20-35.	1.0	5
34	TOSCA Lightning: An Integrated Toolchain for Transforming TOSCA Light into Production-Ready Deployment Technologies. Lecture Notes in Business Information Processing, 2020, , 138-146.	0.8	4
35	The NISQ Analyzer: Automating the Selection of Quantum Computers for Quantum Algorithms. Communications in Computer and Information Science, 2020, , 66-85.	0.4	25
36	The bitter truth about gate-based quantum algorithms in the NISQ era. Quantum Science and Technology, 2020, 5, 044007.	2.6	95

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37	TOSCA4QC: Two Modeling Styles for TOSCA to Automate the Deployment and Orchestration of Quantum Applications. , 2020, , .		12
38	Integrating Quantum Computing into Workflow Modeling and Execution., 2020,,.		19
39	The Quantum software lifecycle., 2020,,.		28
40	About a criterion of successfully executing a circuit in the NISQ era: whatwdâ‰ a 1/?effreally means. , 2020, , .		11
41	TOSCA Light: Bridging the Gap between the TOSCA Specification and Production-ready Deployment Technologies. , 2020, , .		12
42	Quantum in the Cloud: Application Potentials and Research Opportunities. , 2020, , .		35
43	Cloud-native Deploy-ability: An Analysis of Required Features of Deployment Technologies to Deploy Arbitrary Cloud-native Applications. , 2020, , .		7
44	The EDMM Modeling and Transformation System. Lecture Notes in Computer Science, 2020, , 294-298.	1.0	10
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47	Monitoring Behavioral Compliance with Architectural Patterns Based onÂComplex Event Processing. Lecture Notes in Computer Science, 2020, , 125-140.	1.0	0
48	Smart Contract Invocation Protocol (SCIP): A Protocol for the Uniform Integration of Heterogeneous Blockchain Smart Contracts. Lecture Notes in Computer Science, 2020, , 134-149.	1.0	19
49	Technology-Agnostic Declarative Deployment Automation of Cloud Applications. Lecture Notes in Computer Science, 2020, , 97-112.	1.0	3
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51	Self-contained Service Deployment Packages. , 2020, , .		3
52	Pattern-based Modelling, Integration, and Deployment of Microservice Architectures. , 2020, , .		11
53	A Systematic Review of Cloud Modeling Languages. ACM Computing Surveys, 2019, 51, 1-38.	16.1	89
54	IT-Centric Process Automation: Study About the Performance of BPMN 2.0 Engines., 2019, , 167-197.		0

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55	Internet of Things Patterns for Communication and Management. Lecture Notes in Computer Science, 2019, , 139-182.	1.0	8
56	Towards a Pattern Language for Quantum Algorithms. Lecture Notes in Computer Science, 2019, , 218-230.	1.0	26
57	An approach to automatically detect problems in restructured deployment models based on formalizing architecture and design patterns. Software-Intensive Cyber-Physical Systems, 2019, 34, 85-97.	2.3	7
58	Modeling and execution of blockchain-aware business processes. Software-Intensive Cyber-Physical Systems, 2019, 34, 105-116.	2.3	21
59	On the algebraic properties of concrete solution aggregation. Software-Intensive Cyber-Physical Systems, 2019, 34, 117-128.	2.3	2
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61	Automated Generation of Management Workflows for Applications Based on Deployment Models. , 2019, , .		9
62	Process-Based Composition of Permissioned and Permissionless Blockchain Smart Contracts. , 2019, , .		20
63	Application Threat Modeling and Automated VNF Selection for Mitigation using TOSCA., 2019, , .		4
64	Dynamic Data Routing Decisions for Compliant Data Handling in Service-and Cloud-Based Architectures: A Performance Analysis. , 2019 , , .		4
65	Serverless Parachutes: Preparing Chosen Functionalities for Exceptional Workloads. , 2019, , .		2
66	Facing the Unplanned Migration of Serverless Applications. , 2019, , .		13
67	An Approach to Determine & Deply Solutions to Solve Detected Problems in Restructured Deployment Models using First-order Logic. , 2019, , .		1
68	Middleware-Oriented Deployment Automation for Cloud Applications. IEEE Transactions on Cloud Computing, 2018, 6, 1054-1066.	3.1	16
69	Utility-Based Decision Making for Migrating Cloud-Based Applications. ACM Transactions on Internet Technology, 2018, 18, 1-22.	3.0	7
70	Modeling and execution of data-aware choreographies: an overview. Computer Science - Research and Development, 2018, 33, 329-340.	2.7	7
71	API governance support through the structural analysis of REST APIs. Computer Science - Research and Development, 2018, 33, 291-303.	2.7	11
72	Modeling Data Transformations in Data-Aware Service Choreographies. , 2018, , .		2

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73	Modeling and Automated Execution of Application Deployment Tests. , 2018, , .		8
74	Pattern-Based Deployment Models and Their Automatic Execution., 2018,,.		13
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76	Blockchain-Based Collaborative Development of Application Deployment Models. Lecture Notes in Computer Science, 2018, , 40-60.	1.0	1
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85	The vision for MUSE4Music. Computer Science - Research and Development, 2017, 32, 323-328.	2.7	5
86	Collaborative gathering and continuous delivery of DevOps solutions through repositories. Computer Science - Research and Development, 2017, 32, 281-290.	2.7	7
87	Situation recognition and handling based on executing situation templates and situation-aware workflows. Computing (Vienna/New York), 2017, 99, 163-181.	3.2	15
88	Extended provisioning, security and analysis techniques for the ECHO health data management system. Computing (Vienna/New York), 2017, 99, 183-201.	3.2	9
89	Developing, deploying, and operating twelve-factor applications with TOSCA., 2017, , .		7
90	Internet of Things Patterns for Device Bootstrapping and Registration., 2017,,.		11

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91	Integrating IoT Devices Based on Automatically Generated Scale-Out Plans. , 2017, , .		2
92	Automating the Provisioning and Integration of Analytics Tools with Data Resources in Industrial Environments Using OpenTOSCA. , 2017, , .		2
93	Generic driver injection for automated IoT application deployments. , 2017, , .		6
94	Standards-Based Function Shipping - How to Use TOSCA for Shipping and Executing Data Analytics Software in Remote Manufacturing Environments. , 2017, , .		5
95	An Universal Approach for Compliance Management Using Compliance Descriptors. Communications in Computer and Information Science, 2017, , 209-231.	0.4	3
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101	A TOSCA-based Programming Model for Interacting Components of Automatically Deployed Cloud and IoT Applications. , 2017, , .		4
102	The SePaDe System: Packaging Entire XaaS Layers for Automatically Deploying and Managing Applications. , 2017, , .		4
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106	Performance Comparison Between BPMN 2.0 Workflow Management Systems Versions. Lecture Notes in Business Information Processing, 2017, , 103-118.	0.8	3
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114	A Management Life Cycle for Data-Aware Service Choreographies. , 2016, , .		3
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116	OpenTOSCA for the 4th Industrial Revolution. , 2016, , .		5
117	OpenTOSCA for loT., 2016, , .		21
118	Performance and Cost Trade-Off in laaS Environments: A Scientific Workflow Simulation Environment Case Study. Communications in Computer and Information Science, 2016, , 153-170.	0.4	2
119	ToscaMart: A method for adapting and reusing cloud applications. Journal of Systems and Software, 2016, 113, 395-406.	3.3	26
120	Streamlining DevOps automation for Cloud applications using TOSCA as standardized metamodel. Future Generation Computer Systems, 2016, 56, 317-332.	4.9	61
121	Hybrid TOSCA Provisioning Plans: Integrating Declarative and Imperative Cloud Application Provisioning Technologies. Communications in Computer and Information Science, 2016, , 239-262.	0.4	2
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123	Micro-Benchmarking BPMN 2.0 Workflow Management Systems with Workflow Patterns. Lecture Notes in Computer Science, 2016, , 67-82.	1.0	15
124	Native Cloud Applications - Why Virtual Machines, Images and Containers Miss the Point!., 2016, , .		9
125	The OpenTOSCA Ecosystem - Concepts & Dols., 2016,,.		17
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127	A situation-aware workflow modelling extension. , 2015, , .		9
128	A Middleware-Centric Optimization Approach for the Automated Provisioning of Services in the Cloud. , $2015, $, .		2
129	Bootstrapping Complex Workflow Middleware Systems into the Cloud. , 2015, , .		8
130	Compensation and Convergence — Comparing and Combining Deployment Automation Approaches. International Journal of Cooperative Information Systems, 2015, 24, 1541001.	0.6	3
131	Executing informal processes. , 2015, , .		3
132	An Integrated mHealth Solution for Enhancing Patients' Health Online. IFMBE Proceedings, 2015, , 695-698.	0.2	5
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134	Context-Aware Provisioning and Management of Cloud Applications. Communications in Computer and Information Science, 2015 , , $151-168$.	0.4	1
135	Automated Capturing and Systematic Usage of DevOps Knowledge for Cloud Applications., 2015,,.		34
136	Towards situation-aware adaptive workflows: SitOPT & amp; #x2014; A general purpose situation-aware workflow management system. , 2015, , .		19
137	Design Support for Performance Aware Dynamic Application (Re-)Distribution in the Cloud. IEEE Transactions on Services Computing, 2015, 8, 225-239.	3.2	5
138	A Conversation Based Approach for Modeling REST APIs., 2015,,.		18
139	On the Road to Benchmarking BPMN 2.0 Workflow Engines. , 2015, , .		19
140	Dynamic Tailoring and Cloud-Based Deployment of Containerized Service Middleware., 2015,,.		6
141	Application of Sub-Graph Isomorphism to Extract Reoccurring Structures from BPMN 2.0 Process Models. , 2015, , .		4
142	A Flexible Engine for the Unified Execution of Service Compositions. , 2015, , .		1
143	Enabling DevOps Collaboration and Continuous Delivery Using Diverse Application Environments. Lecture Notes in Computer Science, 2015, , 348-358.	1.0	10
144	Dyn Tail - Dynamically Tailored Deployment Engines for Cloud Applications. , 2015, , .		9

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146	Choreography-based Consolidation of Interacting Processes Having Activity-based Loops., 2015,,.		1
147	ANY2API – Automated APIfication - Generating APIs for Executables to Ease their Integration and Orchestration for Cloud Application Deployment Automation. , 2015, , .		2
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149	Streamlining Cloud Management Automation by Unifying the Invocation of Scripts and Services Based on TOSCA. International Journal of Organizational and Collective Intelligence, 2014, 4, 45-63.	0.3	6
150	Design Support for Cost-Efficient Application Distribution in the Cloud. , 2014, , .		2
151	A Model-Driven Approach for REST Compliant Services. , 2014, , .		17
152	Standards-Based DevOps Automation and Integration Using TOSCA. , 2014, , .		52
153	Towards Dynamic Application Distribution Support for Performance Optimization in the Cloud. , 2014, , .		4
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155	Service Selection for On-Demand Provisioned Services. , 2014, , .		7
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157	CloudDSF $\hat{a}\in$ The Cloud Decision Support Framework for Application Migration. Lecture Notes in Computer Science, 2014, , 1-16.	1.0	10
158	TOSCA: Portable Automated Deployment and Management of Cloud Applications., 2014,, 527-549.		125
159	Lego4TOSCA: Composable Building Blocks for Cloud Applications. , 2014, , .		3
160	A process for pattern identification, authoring, and application. , 2014, , .		14
161	Your Coffee Shop Uses Cloud Computing. IEEE Internet Computing, 2014, 18, 52-59.	3.2	7
162	Integrating Compliance Requirements across Business and IT., 2014,,.		9

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163	Development and Evaluation of a Multi-tenant Service Middleware PaaS Solution. , 2014, , .		3
164	SCE^MT: A Multi-tenant Service Composition Engine. , 2014, , .		2
165	Deployment Aggregates - A Generic Deployment Automation Approach for Applications Operated in the Cloud. , 2014, , .		4
166	Cloud Computing Patterns. , 2014, , .		187
167	Optimal Distribution of Applications in the Cloud. Lecture Notes in Computer Science, 2014, , 75-90.	1.0	25
168	Replicability of Dynamically Provisioned Scientific Experiments., 2014,,.		1
169	Combining Declarative and Imperative Cloud Application Provisioning Based on TOSCA., 2014, , .		67
170	Characterizing and Evaluating Different Deployment Approaches for Cloud Applications. , 2014, , .		9
171	Evaluating Caching Strategies for Cloud Data Access Using an Enterprise Service Bus., 2014,,.		4
172	Migrating enterprise applications to the cloud: methodology and evaluation. International Journal of Big Data Intelligence, $2014, 1, 127$.	0.4	15
173	Informal Process Essentials. , 2014, , .		7
174	A GENTL Approach for Cloud Application Topologies. Lecture Notes in Computer Science, 2014, , 148-159.	1.0	18
175	DevOpSlang $\hat{a}\in$ Bridging the Gap between Development and Operations. Lecture Notes in Computer Science, 2014, , 108-122.	1.0	32
176	Compensation-Based vs. Convergent Deployment Automation for Services Operated in the Cloud. Lecture Notes in Computer Science, 2014, , 336-350.	1.0	11
177	Cloud Computing Fundamentals. , 2014, , 21-78.		9
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179	How to adapt applications for the Cloud environment. Computing (Vienna/New York), 2013, 95, 493-535.	3.2	212
180	Cloud Computing Automation: Integrating USDL and TOSCA. Notes on Numerical Fluid Mechanics and Multidisciplinary Design, 2013, , 1-16.	0.2	16

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181	Supporting the Migration of Applications to the Cloud through a Decision Support System., 2013,,.		30
182	Service Migration Patterns – Decision Support and Best Practices for the Migration of Existing Service-Based Applications to Cloud Environments. , 2013, , .		17
183	Workflow ART: a framework for multidimensional workflow analysis. Enterprise Information Systems, 2013, 7, 133-166.	3.3	14
184	Unifying Compliance Management in Adaptive Environments through Variability Descriptors (Short) Tj ETQq0 0	0 rgBT /Ο\	verlock 10 Tf !
185	Automated Discovery and Maintenance of Enterprise Topology Graphs. , 2013, , .		10
186	Unified Execution of Service Compositions (Short Paper)., 2013,,.		3
187	On-demand Provisioning of Infrastructure, Middleware and Services for Simulation Workflows. , 2013, , .		18
188	Green Business Process Patterns Part II (Short Paper)., 2013,,.		6
189	SOA-enabled compliance management: instrumenting, assessing, and analyzing service-based business processes. Service Oriented Computing and Applications, 2013, 7, 275-292.	1.3	5
190	Determining Power Consumption of Business Processes and Their Activities to Enable Green Business Process Reengineering., 2013,,.		6
191	Enabling Dynamic Deployment of Cloud Applications Using a Modular and Extensible PaaS Environment. , 2013, , .		9
192	Performance Optimizations for Interacting Business Processes*., 2013,,.		4
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194	Policy4TOSCA: A Policy-Aware Cloud Service Provisioning Approach to Enable Secure Cloud Computing. Lecture Notes in Computer Science, 2013, , 360-376.	1.0	20
195	OpenTOSCA – A Runtime for TOSCA-Based Cloud Applications. Lecture Notes in Computer Science, 2013, , 692-695.	1.0	133
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201	Vino4TOSCA: A Visual Notation for Application Topologies Based on TOSCA. Lecture Notes in Computer Science, 2012, , 416-424.	1.0	34
202	Cost-based prevention of violations of service level agreements in composed services using self-adaptation. , $2012, \ldots$		4
203	ESB ^{MT} : Enabling Multi-Tenancy in Enterprise Service Buses. , 2012, , .		13
204	Improving the Manageability of Enterprise Topologies Through Segmentation, Graph Transformation, and Analysis Strategies. , 2012 , , .		14
205	Flexible information design for business process visualizations. , 2012, , .		2
206	Pattern-Based Development and Management of Cloud Applications. Future Internet, 2012, 4, 110-141.	2.4	31
207	Capturing Cloud Computing Knowledge and Experience in Patterns. , 2012, , .		16
208	Enabling tenant-aware administration and management for JBI environments. , 2012, , .		9
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210	Combining horizontal and vertical composition of services. Service Oriented Computing and Applications, 2012, 6, 117-130.	1.3	13
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214	Linked Compute Units and Linked Experiments: Using Topology and Orchestration Technology for Flexible Support of Scientific Applications. Lecture Notes in Computer Science, 2012, , 71-80.	1.0	7
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219	Towards a service composition language for heterogeneous service environments. , 2011, , .		5
220	A Novel Framework for Monitoring and Analyzing Quality of Data in Simulation Workflows. , 2011, , .		9
221	Identifying influential factors of business process performance using dependency analysis. Enterprise Information Systems, 2011, 5, 79-98.	3.3	48
222	Towards choreography-based process distribution in the cloud. , 2011, , .		7
223	Synchronization of Adaptive Process Models Using Levels of Abstraction. , 2011, , .		2
224	An approach to combine data-related and control-flow-related compliance rules. , $2011, \ldots$		6
225	CMotion: A framework for migration of applications into and between clouds. , $2011, \ldots$		30
226	An architectural pattern language of cloud-based applications. , 2011, , .		28
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232	A Taxonomy for Cloud Data Hosting Solutions. , 2011, , .		8
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