Giuseppe Di Modica

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Education

2005

PhD Electronic, Computer and Telecommunication engineering, *University of Catania*, Catania.

2000

MSc Computer engineering, *University of Catania*, Catania.

Current employment

Assistant professor (tenure track) with the Department of Computer Science and Engineering, University of Bologna, Italy

Languages

Italian	Native	*Mother Tongue*
English	Fluent	*Daily practice, all work performed in English*

Research interests

The candidate's scientific activity has been developed with continuity since 2001. The activity was in part carried out in the context of National and European research projects, and focused on the several topics. In the following, a brief summary of activities developed in each research topic is reported.

Past research (2001 - 2008)

- Mobile Agent Systems.
- Distributed and adaptive systems based on mobile code technologys.
- Middleware for sensor networks and ad-hoc mobile networks (MANET).
- Middleware for fourth generation networks.
- Adaptive systems for personal and ubiquitous computing.
- Service Level Agreements in Grid and SOA.

Recent and current research

- **Automatic orchestration of resources in Cloud Continuum environments.** Today, one of the major challenges that Cloud Providers must face is the automation of all those service provisioning activities useful for configuring, installing, and setting up the applications required to provide the end service to the user. Automation and the correct implementation of such tasks are indeed essential prerequisites for the provider to implement a scalable system without which access to prominent positions in the market remains restricted. In this line of research, a cloud resource orchestration framework has been designed and implemented, inspired by the well-known and widely used TOSCA standard, leveraging a BPMN-based process engine to implement provisioning strategies capable of reacting to faults that may occur at runtime. The framework has lately been extended to support the resource orchestration in the so called Cloud continnum, i.e., the uninterrupted computing environment spanning the Edge and the Cloud

- **Big Data analysis in geographical contexts.** This research activity addressed the issues of big data computing in contexts where data natively reside in data centers that are geographically distant to each other's. The performance of typical big data analysis tools (Hadoop) was proven to be very poor in such contexts, so an approach based on two levels of computation was studied in the course of this research. Specifically, at the top-level some smart algorithm is run to split a submitted job into multiple sub-jobs, which in their turn are charged the responsibility to compute the data distributed over many low-level data centers. A framework prototype was also developed for testing purpose.

- **Semantic service discovery in SOA environments.** This research activity concerned the study and definition of a solution for effective service discovery in SOA environments. The growing number Web Service published by providers worldwide challenges the current service discovery systems, which show poor performance in terms of both response time and in accuracy of provided results. These systems, in fact, are mainly based on the use of centralized registers in which descriptions of services are pushed. If such an approach is sufficient on a local base, in worldwide scenarios envisioned by interoperable SOA affecting different administrative domains it is no longer efficient. The solution that has been proposed and developed leverage on both P2P and semantic technologies. A distributed architecture for service discovery was designed and implemented that on one hand uses the potential of P2P to overcome the scalability problem, and on the other employs semantic techniques to improve the accuracy of results.

- **Middleware for wireless sensor networks**. Focus of this activity was on the development of solutions and strategies for the management of large-scale networks of sensors and the produced sensor data. In the big picture of the emerging Internet of Things (IoT), the objective of the study was to design a middleware capable of abstracting physical sensors from their proprietary interfaces and expose them in an as-a-Service fashion for use in third party applications and services. In the same context, a way to characterize heterogeneous sensors in a semantic way was explored. In particular, a semantic framework was developed and implemented which combines functional and geographic properties of worldwide deployed sensors and sensor networks.

- **Business Process Management**. Many organizations and market players recognize the role of the Business Process Management as a strategic business tool enabling the enterprise as a whole to pursue business goals and to quickly respond to market challenges. The study conducted in this research activity focused on the crucial role of the business process analysis, and in particular of the business process simulation, in the entire business process' lifecycle. In that context, it was designed a new resource model capable of capturing the features of all the resources that processes interact with during their execution. A business process simulator was also developed which leverages on the mentioned resource model and offers process designers Activity Based Costing (ABC) tools to make cost-oriented assessments on their design choices.

- **Security in SOA and Cloud Computing**. Since its break-through the cloud computing technology has aroused skepticism and criticism of many who were far more concerned of the security of their data and application than the potential benefits promised by the new computing paradigm. Further, interoperable contexts fostered by the SOA exacerbated the security question even more, as customer had to cope with many providers and the heterogeneous policies they enforce. Objective of this research activity was the definition of semantic framework to enable the matchmaking of providers' security policies and customer's security requirements in Cloud environments. A mechanism was conceived to enrich well known and stantardized (syntactic) policies with semantic annotations which enable machine reasoning. The use of semantic techniques provides guarantees of "smart" matches between what is actually requested by customers and what provides offer in term of data and application security.

- **SLA in Cloud Computing environment**. The research activity focused on the study of negotiation protocols and dynamic management of Service Level Agreements (SLAs) in cloud computing environments. Cloud resources, though heterogeneous, have well-defined functional connotations (CPU, storage, execution environments, applications). The interest of the scientific community moves towards the study of non-functional feature. SLAs become crucial for the management of resources, in that they guarantee the quality of the performance of virtualized resources and services built on top of them. In order to better meet the changing needs and expectations of participants in the cloud, and to deal with any fluctuations in availability of individual resources, SLAs must be flexible and need to adapt the conditions of the context in which they operate. The goal of this activity was the design and implementation of a framework for the creation and management of flexible SLA, as well as the management of negotiation processes of non-functional parameters in complex environments where virtualized cloud resources are composed to each other in order to offer high-value services.

- **New price strategies in future Cloud Markets**. The strategy adopted by main commercial IaaS providers to allocate virtual machines to requesting customers is the *direct-sell at fixed price*. Providers ask customers to pay a fixed price for accessing computing capacity by the hour. This research activity focuses on market-based allocation models and algorithms for Cloud resources. In particular, the study proposes the adoption of alternative auction-based mechanisms to sell the "residual" computing capacity of IaaS providers. Main achievement of this research is the design of a procurement market for computing resources, the design of an overbooking mechanism to be used by providers in their bidding strategy and the implementation of a software simulator to assess the benefit of the procurement market for both providers and consumers of cloud resources.

- **A unified ontology for the management of environmental risks**. Among the possible applications of IoT technologies, the ability to monitor environmental parameters in detail stands out for effective prevention of natural disasters. In this line of research, the design of a semantic information model has been studied, which integrates and unifies data from different informed domains under a single perspective. In particular, some ontologies have been defined that represent respectively the domain of risk information, the domain of sensors (which are responsible for measuring phenomena that could cause risks), the geographical domain, and the environmental risk domain. In the proposed semantic framework, even a generic geographical entity (whether it be a single building or an entire region) can be characterized from the perspective of environmental risk. The resulting knowledge base can then be used to create monitoring services capable of identifying those detection units (sensors) in the territory whose data are truly useful for setting up a rescue plan. Furthermore, a prototype of such a monitoring tool has been implemented.

Technology Transfer Activities

The candidate was a founding partner and sole director of the company "Beng Business Engineering s.r.l." The company BEng s.r.l. was established in November 2013 from an idea of the partners to capitalize on years of experience gained in the academic field on some research topics that are of strong interest to the business world. The know-how brought to BEng was built through the study and deepening of specific research insights of international interest, the results of which have been reflected in numerous scientific publications in prestigious Congress Proceedings and Journals, but above all through the direct participation of the partners in various regional and national research and development projects, in which products/services were developed for the improvement of business processes.

The candidate is a founding partner of the university Spin-Off "ALLINCLOUD s.r.l." (https://allincloud.eu/). The Spin-Off originated from an idea of a group of researchers to capitalize on experience gained in the academic field on research topics closely related to the Cloud and Edge Computing world.

Participation to research projects

2023 to date	Regional Research project "RESIST0 - A Digital Twins-enabled platform for a REsilient and Sustainable production in the InduSTry 5.0 era" - Financed by competitive regional calls - Action 1.1.2 of the PR FESR 2021/2027 - Support for collaborative research projects between research laboratories and universities with businesses - Emilia Romagna Region. Assigned function: Principal Investigator.
2019 to 2022	H2020 Research project "IoTwins - IoTwins - Distributed Digital Twins for industrial SMEs: a big-data platform" - Grant Agreement n. 857191. Assigned function: Task Leader - T2.7: Edge Node Data Services Development.
2016 to 2019	Research project "SIMPATICO - Simplifying the interaction with Public Administration", project ID: 692819, funded in H2020-EU.3.6. - SOCIETAL CHALLENGES. Assigned function: Scientific responsible of the BEng s.r.l. partner
2012-2014	Research project in the European program for the regional development, PO FESR 2007-2013, "Cloud4Business - Cloud technology to support processes of planning and control of SME ". Assigned function: Cloud architecture and middleware design.
2011-2014	National research project in the call Industria 2015 (funded by Italian ministry of development), New technology for the Made in Italy, "SeNSori– Sensor Node as a Service for Home and Buildings Energy Saving". Assigned function: Design and development of a middleware for the management of sensors and sensor networks in civil environments.
2010-2013	National research project in the call PRIN (funded by Italian ministry of research), "Cloud@Home: a novel and augmented computing paradigm". Assigned function: Design and implementation of the SLA negotiation component.
2007-2008	Research project PON PI2S2 (funded by regional government), "Project for the implementation and the development of an e-Infrastructure in Sicily based on the GRID paradigm".
2000-2002	European research project "VESPER" (Virtual Home Environment for Service Personalization and Roaming Users / IST-1999-10825), funded by FP5. Assigned function: Design and implementation of distributed components of the Virtual Home Environment middleware.

Revision activities

Program Commettee Membership

IEEE International Symposium on Computers and Communications (ISCC)

IEEE International Conference on Big Data Innovations and Applications (Innovate-Data)

IEEE/ACM International Symposium in Cluster, Cloud, and Grid Computing (CC-Grid)

IEEE/ACM International Symposium on Quality of Service (IWQoS)

IEEE International Symposium on a World of Wireless, Mobile and Multimedia Networks (WoWMoM)

IEEE International Conference on Future Internet of Things and Cloud (FiCloud)

IEEE International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob)

IEEE International Conference on Information and Communication Systems (ICICS)

ACM International Conference on the Internet of Things (IoT)

INSTICC International Conference on Software Engineering for Service and Cloud Computing (SE-CLOUD)

INSTICC International Conference on Cloud Computing and Services Science (CLOSER)

IEEE Workshop on Secure IoT, Edge and Cloud systems (SioTec) – in conjunction with IEEE/ACM CCGRID

IEEE Workshop on Cloud-to-Things continuum: towards the convergence of IoT, Edge and Cloud Computing (Cloud2Things) – in conjunction with IEEE/ACM CCGRID

Scientific Journals

IEEE Transaction on Dependable and Secure Computing (TDSC)

IEEE Transaction on Emerging Topics in Computing (TETC)

IEEE Transaction on Industrial Informatics (TII)

IEEE Transaction on Parallel and Distributed Systems (TPDS)

IEEE Transaction on Systems, Man, and Cybernetics: Systems (TSMC-Systems)

IEEE Software

IEEE Access

Elsevier Journal of Systems and Software (JSS)

Elsevier Information Sciences (INS)

Elsevier Future Generation Conputer Systems (FGCS)

Elsevier Knowledge-Based Systems (KNOSYS)

Elsevier Journal of Network and Computer Applications (JNCA)

Elsevier Applied Computing and Informatics (ACI)

Springer Computing (COMP)

Springer Journal of Grid Computing – From Grids to Cloud Federations (JoGC)

Springer Journal of Network and Systems Management (JONS)

MDPI Sensors

MDPI Smart Cities

MDPI Future Internet

Journal Publications

[2024] Bellavista, P. and G. Di Modica (2024). "IoTwins: Implementing Distributed and Hybrid Digital Twins in Industrial Manufacturing and Facility Management Settings". In: *Future Internet* 16.2.

2023 Canali, C., G. Di Modica, R. Lancellotti, S. Rossi, and D. Scotece (2023). "A Validated Performance Model for Micro-services Placement in Fog Systems". In: *SN Computer Science* 4.4.

2023 Di Modica, G. and L. Foschini (2023). "A Survey on the Use of Lightweight Virtualization in I4.0 Manufacturing Environments". In: *Journal of Network and Systems Management* 31.2.

2022 Corradi, A., G. Di Modica, L. Foschini, L. Patera, and M. Solimando (2022). "SIRDAM4.0: A Support Infrastructure for Reliable Data Acquisition and Management in Industry 4.0". In: *IEEE Transactions on Emerging Topics in Computing* 10.3, pp. 1605–1620.

2022 Costantini, A., G. Di Modica, J.C. Ahouangonou, D.C. Duma, B. Martelli, M. Galletti, M. Antonacci, D. Nehls, P. Bellavista, C. Delamarre, and D. Cesini (2022). "IoTwins: Toward Implementation of Distributed Digital Twins in Industry 4.0 Settings". In: *Computers* 11.5.

2022 Di Modica, G. and O. Tomarchio (2022). "A Hierarchical Hadoop Framework to Process Geo-Distributed Big Data". In: *Big Data and Cognitive Computing* 6.1.

2021 Calcaterra, D., G. Di Modica, P. Mazzaglia, and O. Tomarchio (2021). "Cluster-Agnostic Orchestration of Containerised Applications". In: *Communications in Computer and Information Science* 1399 CCIS. Conference of 10th International Conference on Cloud Computing and Services Science, CLOSER 2020 ; Conference Date: 7 May 2020 Through 9 May 2020; Conference Code:256809, pp. 301–324.

2021 Cavallaro, C., A. Bujari, L. Foschini, G. Di Modica, and P. Bellavista (2021). "Measuring the impact of COVID-19 restrictions on mobility: A real case study from italy". In: *Journal of Communications and Networks* 23.5, pp. 340–349.

2021 Costantini, A., D.C. Duma, B. Martelli, M. Antonacci, M. Galletti, S.R. Tisbeni, P. Bellavista, G. Di Modica, D. Nehls, J.-C. Ahouangonou, C. Delamarre, and D. Cesini (2021). "A Cloud-Edge Orchestration Platform for the Innovative Industrial Scenarios of the IoTwins Project". In: *Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics)* 12950 LNCS. Conference of 21st International Conference on Computational Science and Its Applications, ICCSA 2021 ; Conference Date: 13 September 2021 Through 16 September 2021; Conference Code:265069, pp. 533–543.

2021 Di Modica, G., L. Evangelisti, L. Foschini, A. Maris, and S. Melandri (2021). "Testing the scalability of the HS-AUTOFIT tool in a high-performance computing environment". In: *Electronics (Switzerland)* 10.18.

2021 Tomarchio, O., D. Calcaterra, G. Di Modica, and P. Mazzaglia (2021). "TORCH: a TOSCA-Based Orchestrator of Multi-Cloud Containerised Applications". In: *Journal of Grid Computing* 19.1.

2020 Tomarchio, O., D. Calcaterra, and G.D. Modica (2020). "Cloud resource orchestration in the multi-cloud landscape: a systematic review of existing frameworks". In: *Journal of Cloud Computing* 9.1.

2019 Di Modica, G. and O. Tomarchio (2019). "MapReduce Join Across Geo-Distributed Data Centers". In: *Communications in Computer and Information Science* 1054. Conference of 5th International Conference on Big Data Innovations and Applications, Innovate-Data 2019 ; Conference Date: 26 August 2019 Through 28 August 2019; Conference Code:230199, pp. 18–31.

2019 Zabaleta, K., U. Lopez-Novoa, I. Pretel, D. López-De-Ipiña, V. Cartelli, G. Di Modica, and O. Tomarchio (2019). "Designing a human computation framework to enhance citizen-government interaction 1". In: *Journal of Universal Computer Science* 25.2, pp. 122–153.

2018 Calcaterra, D., V. Cartelli, G. Di Modica, and O. Tomarchio (2018a). "A framework for the orchestration and provision of cloud services based on TOSCA and BPMN". In: *Communications in Computer and Information Science* 864, pp. 262–285.

2018 Calcaterra, D., G. Di Modica, O. Tomarchio, and P. Romeo (2018a). "A clinical decision support system to increase appropriateness of diagnostic imaging prescriptions". In: *Journal of Network and Computer Applications* 117, pp. 17–29.

2018 Calcaterra, D., G. Di Modica, O. Tomarchio, and P. Romeo (2018b). "A clinical decision support system to increase appropriateness of diagnostic imaging prescriptions". In: *Journal of Network and Computer Applications* 117, pp. 17–29.

2018 Cavallo, Marco, Giuseppe Di Modica, CArmelo Polito, and Orazio Tomarchio (2018). "A Hierarchical Hadoop Framework to Handle Big Data in Geo-Distributed Computing Environments". In: *International Journal of Information Technologies and Systems Approach (IJITSA)* 11.1, pp. 16–47.

2018 Tomarchio, Orazio, Giuseppe Di Modica, Marco Cavallo, and Carmelo Polito (2018). "A hierarchical hadoop framework to handle big data in geo-distributed computing environments". In: *International Journal of Information Technologies and Systems Approach* 11.1, 16 – 47.

2017 Placido, R., D. Calcaterra, S. Canitano, G. Capodieci, G. Di Modica, M.A. Marino, E. Pofi, O. Tomarchio, and A. Orlacchio (2017). "COLLABORADI: a rule-based diagnostic imaging prescription system to help the general practitioner to choose the most appropriate radiological imaging procedures". In: *Radiologia Medica* 122.3. eid=2-s2.0-85003837198, pp. 186–193.

2016 Calcaterra, Domenico, Marco Cavallo, Giuseppe Di Modica, and Orazio Tomarchio (2016). "Modelling and Monitoring Environmental Risks through a Semantic Framework". In: *International Journal of Distributed Systems and Technologies (IJDST)* 7.4, pp. 1–21.

2016 Modica, Giuseppe Di and Orazio Tomarchio (2016). "Matchmaking semantic security policies in heterogeneous clouds". In: *Future Generation Computer Systems* 55, pp. 176 –185.

2015 Di Modica, G., O. Tomarchio, P. Bonacquisto, and G. Petralia (2015). "A procurement auction market to trade residual Cloud computing capacity". In: *Cloud Computing, IEEE Transactions on* 3.3, pp. 345–357.

2015 Di Modica, Giuseppe and Orazio Tomarchio (2015a). "A semantic framework to support resource discovery in future cloud markets". In: *International Journal of Computational Science and Engineering* 10.1-2, pp. 1–14.

2015 Di Modica, Giuseppe and Orazio Tomarchio (2015b). "Matching the business perspectives of providers and customers in future cloud markets". In: *Cluster Computing* 18.1, pp. 457–475.

2014 Tina, Giuseppe, Valeria Amenta, Orazio Tomarchio, and Giuseppe Di Modica (2014). "Web interactive non intrusive load disaggregation system for active demand in smart grids". In: *EAI Endorsed Transactions on Energy Web* 1.3.

2013 Cuomo, A., G. Di Modica, S. Distefano, A. Puliafito, M. Rak, O. Tomarchio, S. Venticinque, and U. Villano (2013). "An SLA-based Broker for Cloud Infrastructures". In: *Journal of Grid Computing* 11.1, pp. 1–25.

2013 Di Modica, Giuseppe, Francesco Pantano, and Orazio Tomarchio (2013a). "An OSGi middleware to enable the Sensor as a Service paradigm". In: *Scalable Computing: Practice and Experience* 14.4, pp. 188–200.

2011 Di Modica, G., O. Tomarchio, and L. Vita (Nov. 2011a). "A P2P based architecture for Semantic Web Service discovery". In: *International Journal of Software Engineering and Knowledge Engineering* 21.7, 1013–1035.

2011

Di Modica, Giuseppe, Orazio Tomarchio, and Lorenzo Vita (June 2011b). "Resource and Service Discovery in SOA: a P2P Oriented Semantic Approach". In: *International Journal of Applied Mathematics and Computer Science* 21.2, 285–294.

2009

Tomarchio, O., G. Di Modica, and L. Vita (May 2009). "Dynamic SLAs management in service oriented environments". In: *Journal of Systems and Software* 82.5, 759–771.

2004

Tomarchio, O., M. Bisignano, and G. Di Modica (2004). "An infrastructure-less peer-to-peer framework for mobile handheld devices". In: *European Transactions on Telecommunications* 15.6, 599–612.

Conference Publications

2023 Bellavista, P. and G. Di Modica (2023). "The IoTwins Methodology and Platform to Implement and Operate Digital Twins-based I4.0 Applications in the Cloud Continuum". In: Conference of 26th Euromicro Conference on Digital System Design, DSD 2023 ; Conference Date: 6 September 2023 Through 8 September 2023; Conference Code:198217. Institute of Electrical and Electronics Engineers Inc., pp. 176–183.

2023 Di Modica, G., A. Galletta, P. Bellavista, and I. Konstantinou (2023). "Cloud2Things 2023: 3rd Workshop on From Cloud to Things: harnessing pervasive data in the Computing Continuum - Welcome and Committees Message from Cloud2Things organizers: Message from Cloud2Things organizers". In: Conference of 2023 IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events, PerCom Workshops 2023 ; Conference Date: 13 March 2023 Through 17 March 2023; Conference Code:189647. Institute of Electrical and Electronics Engineers Inc., p. 110.

2023 Di Modica, G., A. Galletta, L. Carnevale, A. Alkhansa, A. Costantini, D. Cesini, P. Bellavista, and M. Villari (2023). "Orchestration of Containerized Applications in the Cloud Continuum". In: Conference of 2023 IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events, PerCom Workshops 2023 ; Conference Date: 13 March 2023 Through 17 March 2023; Conference Code:189647. Institute of Electrical and Electronics Engineers Inc., pp. 44–49.

2023 Herrera, J.L., D. Scotece, J. Galán-Jiménez, J. Berrocal, G. Di Modica, and L. Foschini (2023). "Latency-Optimal Network Microservice Architecture Deployment in SDN". In: Conference of 2023 IEEE Global Communications Conference, GLOBECOM 2023 ; Conference Date: 4 December 2023 Through 8 December 2023; Conference Code:197692. Institute of Electrical and Electronics Engineers Inc., pp. 5202–5207.

2023 Morabito, G., C. Sicari, L. Carnevale, A. Galletta, G.D. Modica, and M. Villari (2023). "Securing Serverless Workflows on the Cloud Edge Continuum". In: Conference of 23rd IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing Workshops, CCGridW 2023 ; Conference Date: 1 May 2023 Through 4 May 2023; Conference Code:190843. Institute of Electrical and Electronics Engineers Inc., pp. 118–124.

2022 Canali, C., G. Di Modica, R. Lancellotti, and D. Scotece (2022). "Optimal Placement of Micro-services Chains in a Fog Infrastructure". In: Conference of 12th International Conference on Cloud Computing and Services Science, CLOSER 2022 ; Conference Date: 27 April 2022 Through 29 April 2022; Conference Code:183560. Science and Technology Publications, Lda, pp. 199–206.

2021 Borghesi, A., G. Di Modica, P. Bellavista, V. Gowtham, A. Willner, D. Nehls, F. Kintzler, S. Cejka, S.R. Tisbeni, A. Costantini, M. Galletti, M. Antonacci, and J.C. Ahouangonou (2021). "IoTwins: Design and implementation of a platform for the management of digital twins in industrial scenarios". In: Conference of 21st IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing, CCGrid 2021 ; Conference Date: 10 May 2021 Through 13 May 2021; Conference Code:171217. Institute of Electrical and Electronics Engineers Inc., pp. 625–633.

2020 Bellavista, P., M. Cilloni, G. Di Modica, R. Montanari, P.C.M. Picone, and M. Solimando (2020). "An Edge-based Distributed Ledger Architecture for Supporting Decentralized Incentives in Mobile Crowdsensing". In: Conference of 20th IEEE/ACM International Symposium on Cluster, Cloud and Internet Computing, CCGRID 2020 ; Conference Date: 11 May 2020 Through 14 May 2020; Conference Code:161853. Institute of Electrical and Electronics Engineers Inc., pp. 781–787.

2020 Bosi, F., A. Corradi, G. Di Modica, L. Foschini, R. Montanari, L. Patera, and M. Solimando (2020). "Enabling Smart Manufacturing by Empowering Data Integration with Industrial IoT Support". In: Conference of 2020 International Conference on Technology and Entrepreneurship, ICTE 2020 ; Conference Date: 21 September 2020 Through 23 September 2020; Conference Code:163781. Institute of Electrical and Electronics Engineers Inc.

2020 Calcaterra, D., G. Di Modica, P. Mazzaglia, and O. Tomarchio (2020). "Enabling container cluster interoperability using a tosca orchestration framework". In: Conference of 10th International Conference on Cloud Computing and Services Science, CLOSER 2020 ; Conference Date: 7 May 2020 Through 9 May 2020; Conference Code:160381. SciTePress, pp. 127–137.

2020 Corradi, A., G. Di Modica, L. Evangelisti, A. Fiorini, L. Foschini, and L. Zerbini (2020). "HS-AUTOFIT: A highly scalable AUTOFIT application for Cloud and HPC environments". In: vol. 2020-July. Conference of 2020 IEEE Symposium on Computers and Communications, ISCC 2020 ; Conference Date: 7 July 2020 Through 10 July 2020; Conference Code:164026. Institute of Electrical and Electronics Engineers Inc.

2019 Calcaterra, D., V. Cartelli, G. Di Modica, and O. Tomarchio (2019). "A comparison of multi-cloud provisioning platforms". In: Conference of 9th International Conference on Cloud Computing and Services Science, CLOSER 2019 ; Conference Date: 2 May 2019 Through 4 May 2019; Conference Code:148430. SciTePress, pp. 507–514.

2019 Cuzzocrea, A., S. Cavalieri, O. Tomarchio, G. Di Modica, C. Cantone, and A. Di Bilio (2019). "REMS.pA: A complex framework for supporting OLAP-based big data analytics over data-intensive business processes". In: vol. 1. Conference of 21st International Conference on Enterprise Information Systems, ICEIS 2019 ; Conference Date: 3 May 2019 Through 5 May 2019; Conference Code:148445. SciTePress, pp. 211–218.

2019 Di Modica, G., A. Di Stefano, G. Morana, and O. Tomarchio (2019). "On the cost of the management of user applications in a multicloud environment". In: Conference of 7th International Conference on Future Internet of Things and Cloud, FiCloud 2019 ; Conference Date: 26 August 2019 Through 28 August 2019; Conference Code:157267. Institute of Electrical and Electronics Engineers Inc., pp. 175–181.

2019 Di Modica, G., S. Gulino, and O. Tomarchio (2019). "IoT fault management in cloud/fog environments". In: Conference of 9th International Conference on the Internet of Things, IoT 2019 ; Conference Date: 22 October 2019 Through 25 October 2019; Conference Code:154793. Association for Computing Machinery.

2019 Modica, G.D., O. Tomarchio, H. Wei, and J.S. Rodriguez (2019). "Policy-based deployment in a hybrid and multicloud environment". In: Conference of 9th International Conference on Cloud Computing and Services Science, CLOSER 2019 ; Conference Date: 2 May 2019 Through 4 May 2019; Conference Code:148430. SciTePress, pp. 388–395.

2019 Zabaleta, K., A.B. Lago, D. Lopez-De-Ipina, G. Di Modica, R. Santos De La Camara, and M. Pistore (2019). "Combining human and machine intelligence to foster wider adoption of e-services". In: Conference of 2019 IEEE SmartWorld, Ubiquitous Intelligence and Computing, Advanced and Trusted Computing, Scalable Computing and Communications, Internet of People and Smart City Innovation, SmartWorld/UIC/ATC/SCALCOM/IOP/SCI 2019 ; Conference Date: 19 August 2019 Through 23 August 2019; Conference Code:159070. Institute of Electrical and Electronics Engineers Inc., pp. 1854–1859.

2018 Calcaterra, Domenico, Vincenzo Cartelli, Giuseppe Di Modica, and Orazio Tomarchio (Mar. 2018b). "Exploiting BPMN features to design a fault-aware TOSCA orchestrator". In: *Proceedings of the 8th International Conference on Cloud Computing and Services Science (CLOSER 2018)*. Funchal-Madeira (Portugal), pp. 533–540.

2018 Cartelli, V., G. Di Modica, O. Tomarchio, D. López-De-Ipiña, K. Zabaleta, and E. Sanz (2018a). "Citizenpedia: Simplifying citizens interaction with public administration". In:

2018 Cartelli, V., G. Di Modica, O. Tomarchio, D. López-De-Ipiña, K. Zabaleta, and E. Sanz (2018b). "Citizenpedia: Simplifying citizens interaction with public administration". In: Conference of 19th Annual International Conference on Digital Government Research: Governance in the Data Age, DG.O 2018 ; Conference Date: 30 May 2018 Through 1 June 2018; Conference Code:136852. Association for Computing Machinery.

2018 Di Modica, G., O. Tomarchio, D. Caltcaterra, and V. Cartelli (2018). "Implementation of a Fault Aware Cloud Service Provisioning Framework". In: Conference of 6th IEEE International Conference on Future Internet of Things and Cloud, FiCloud 2018 ; Conference Date: 6 August 2018 Through 8 August 2018; Conference Code:139611. Institute of Electrical and Electronics Engineers Inc., pp. 9–16.

2017 Calcaterra, Domenico, Vincenzo Cartelli, Giuseppe Di Modica, and Orazio Tomarchio (Apr. 2017). "Combining TOSCA and BPMN to Enable Automated Cloud Service Provisioning". In: *Proceedings of the 7th International Conference on Cloud Computing and Services Science (CLOSER 2017)*. Porto (Portugal), pp. 187–196.

2017 Cavallo, Marco, Giuseppe Di Modica, Carmelo Polito, and Orazio Tomarchio (Apr. 2017). "A LAHC-based Job Scheduling Strategy to Improve Big Data Processing in Geo-distributed Contexts". In: *Proceedings of the 2nd International Conference on Internet of Things, Big Data and Security (IoTBDS 2017)*. Porto (Portugal), pp. 92–101.

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