

# Preface to the JOT Special Issue dedicated to Prof. Antonio Vallecillo on his 60th Birthday

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**ABSTRACT** This special issue was born from an idea to thank Prof. Antonio Vallecillo, on the occasion of his 60th birthday, for his numerous contributions to the scientific community. We dedicate this collection of articles to an excellent professor, supervisor, leader, colleague and friend. The articles in this issue are related to software modeling, the main research area of Prof. Vallecillo.

**KEYWORDS** Model-based engineering, modelling foundations, modelling applications

## 1. About Prof. Antonio Vallecillo

Prof. Antonio Vallecillo was born in Málaga in 1962, in La Victoria, a vibrant neighborhood in the heart of the city and close to the sea. He studied Mathematics and did his PhD in Computer Science at the University of Málaga. Currently, he is Full Professor of Software Engineering at the Universidad de Málaga, and Vice-President of the Spanish Society for Informatics (SCIE). His research interests include Model-based Software Engineering, open distributed processing (ODP) and software quality.

Between 1986 and 1995 he was in the computer industry, working for Fujitsu and ICL, both in Spain (1986-1991) and in the UK (1991-1994). In 1996 he joined the University of Málaga where he leads the ATENEA research group on Software Modeling and Analysis (<http://atenea.lcc.uma.es>). He has participated in 41 research project (5 European, 8 National Projects, 1 Iberoamerican, 1 PETRI, 1 FEDER, 12 Networks, 5 Integrated Actions, 3 Special Actions, 5 regional projects), being the PI of 15 of them. He is involved in several standardization activities within AENOR, ISO, ITU-T and the OMG, being co-editor of ISO/IEC standard 19793, ITU-T X.906 (UML4ODP) and of

the revised version of RM-ODP (ISO/IEC 10746, Parts 2 and 3, ITU-T X.902 and ITU-T X.903). He has been the Spanish representative at IFIP TC2 and ISO SC7, and he is now the leader of CTN 71 Working Group on “Techniques for the specification of IT Systems” (GT19) at UNE. He has served as reviewer for CCSDS (Consultative Committee for Space Data Systems) and for NASA/JPL on the application of RM-ODP standards to the RASDS (Reference Architecture for Space Data Systems) and Future Mars Network Architecture (2004-08) projects. He is also a certified Technical Expert at ENAC (Entidad de Acreditación Nacional), and since 2013 serves as Assessor for the Australian Research Council (ARC).

He has supervised 8 PhD theses, and 3 more are currently in progress. He served as Vice-President of Postgraduate and Doctoral studies at the Universidad de Málaga, being responsible for all Master and PhD programs, the University’s Lifelong-Learning and Continuing Education courses, and for the University’s MOOCs program. Between 2014 and 2018 he was the President of the Spanish Society on Software Engineering (SISTEDES, [www.sistedes.es](http://www.sistedes.es)). Between 2017 and 2020 he coordinated the Computer Science and Information Technologies (INF) area of the Spanish Research Agency (AEI). Since 2020 he is Vice-President of the Spanish Society on Informatics (SCIE, [www.scie.es](http://www.scie.es)). He is Senior Member of ACM, AAIA Fellow, and Member of the Academia Europaea.

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## 1.1. Publications

Prof. Vallecillo's work has been published in a significant number of articles, books and book chapters in high-quality venues throughout his career. He has been the editor of 2 books (Springer and RA-MA), journal special issues in top venues, and conference proceedings (5 Springer LNCS, 5 ACM/IEEE DL). He has published with more than 100 authors from 30 countries.

The complete list of his publications can be found at:

- DBLP (<http://www.informatik.uni-trier.de/~ley/db/indices/a-tree/v/Vallecillo:Antonio.html>) and
- Google Scholar (<http://scholar.google.com/citations?user=yijLskAAAAJ>).

Among all these contributions, we would like to highlight the following ones, which have been awarded prizes by the scientific community:

- N. Moreno, A. Pérez-Vereda, A. Vallecillo. *Managing Reputation in Collaborative Social Computing Applications*. In proc. of ECMFA 2022, July 2022 (?). (Best Paper Award).
- M. Gogolla, A. Vallecillo. *Tractable Model Transformation Testing*. Proc. of ECMFA'11, pp. 221-235. Birmingham, UK, June 2011 ([Gogolla & Vallecillo 2011](#)) (10-year Most Influential Paper Award).
- F. J. Navarrete and A. Vallecillo. *Introducing Subjective Knowledge Graphs*. Proc. of EDOC'21, Australia, October 2021. IEEE Computer Society ([Navarrete & Vallecillo 2021](#)). (Best Paper Award).
- G. Barquero, J. Troya and A. Vallecillo. *Trading Accuracy for Performance in Data Processing Applications* ([Barquero et al. 2019](#)). In Proc. of ECMFA 2019, Journal of Object Technology 18(2)9:1- 24, Eindhoven, The Netherlands, July 2019 () (Best Paper Award).
- L. Burgueño, M. F. Bertoa, N. Moreno, A. Vallecillo. *Expressing Confidence in Models and in Model Transformation Elements*. In Proc. of MODELS 2018, pp. 57-66. Copenhagen, Denmark, October 2018 ([Burgueño et al. 2018](#)). (Best Paper Award).
- M. Gogolla, A. Vallecillo, L. Burgueño, F. Hilken. *Employing classifying terms for testing model transformations*. In Proc. of MODELS 2015, pp. 312-321. Ottawa, Canada, October 2015 ([Gogolla et al. 2015](#)). (Best Paper Award).
- J. E. Rivera, E. Guerra, J. de Lara, A. Vallecillo. *Analyzing Rule-Based Behavioral Semantics of Visual Modeling Languages with Maude..* In Proc. of SLE 2008, pp. 54-73. Toulouse, France, September 2008 ([Rivera et al. 2008](#)). (10-year Most Influential Paper Award).
- J. Troya, A. Vallecillo. *Towards a Rewriting Logic Semantics for ATL*. In Proc. of ICMT 2010, pp. 230-244. Málaga, Spain, June 2010 ([Troya & Vallecillo 2010](#)). (Best Paper Award).
- N. Moreno, A. Vallecillo. *A Model-Based Approach for Integrating Third Party Systems with Web Applications*. In Proc. of ICWE 2005, pp. 441-452. Sydney, Australia, July 2005 ([Moreno & Vallecillo 2005](#)). (Best Paper Award).

## 1.2. Community Service

Prof. Vallecillo has been instrumental in numerous community activities.

He has organized several international conferences, including ECOOP'02 and TOOLS'10, and has been the General Chair for MODELS'13, ECOOP'17 and CEDI 20/21 in Málaga. He has initiated and organized the International Conference on Model Transformations (ICMT), the International Conference on Model Transformation, and the Software Technologies: Applications and Foundations federated conference (STAF) and several series of international workshops (WODPEC, MDWE, MDI and VAO).

He has served as PC Chair of several international conferences (ICMT'08, IDEAS'08, TOOLS Europe 2011, ECMFA'12, QoSA'12, ICSOC'17, ECMFA'20, QUATIC'22), and national ones (JSWEB'08, JISBD'09).

He is in the Editorial Board of the Software and Systems Modeling (Sosym) and Business & Information Systems Engineering (BISE) journals and of the Journal of Object Technology (JOT). He has been the keynote speaker at the international conferences ICPE'11, QUATIC'19 and UYMK'20.

## 1.3. Personal

We want to mention a few personal facets of Antonio. Antonio is Spanish and Andalusian by birth and by soul. "Andalusian citizens are above all else good and nice people who know how to live life to its fullest and are happy". Jog with Antonio along the Málaga promenade on a Saturday morning or visit with him the Málaga University cafeteria: Nearly everybody knows and greets Antonio. When flying to Málaga, Antonio will pick you up at the airport. Antonio will do so even for your daughter and her friend, and he knows where the hotel room key is, when the reception is unoccupied.

As a supervisor and mentor words are not enough to describe him. He is enthusiastic, caring, hardworking, supportive, funny, and the list goes on. He is definitely a role model for those who had the chance to work closely with him.

## 2. Contents of this Special Issue

This issue contains articles covering the fields of Model-Driven Engineering, domain-specific languages, formal methods (especially rewriting systems and Maude), model transformations, software reusability and language composition. The papers underwent a thorough peer review process. The list of accepted papers is as follows:

- Paula Muñoz, Javier Troya, Manuel Wimmer and Gerti Kappel. *Revisiting Fault Localization Techniques for Model Transformations: Towards A Hybrid Approach* ([Muñoz et al. 2022](#))
- Robert Clarisó, Lola Burgueño and Jordi Cabot. *Managing Design-time Uncertainty in OCL Expressions* ([Clarisó et al. 2022](#))
- Javier Criado and Luis Iribarne. *Reusability and discovery models in modern software systems* ([Criado & Iribarne 2022](#))

- Francisco Durán. *Rewriting Logic and Maude for the Formalization and Analysis of DSMLs, and the Prototyping of MDSE Tools* (Duran 2022)
- Florian Drux, Nico Jansen and Bernhard Rumpe. *A Catalog of Design Patterns for Compositional Language Engineering* (Drux et al. 2022)
- Richard Paige, Steffen Zschaler, Fiona Polack, Nicholas Annable and Thomas Chiang. *Interface Contracts for Workflow+ Models: Towards an Approach for Managing Uncertainty across Heterogeneous Models* (Paige et al. 2022)
- María José Escalona, Nora Parcus de Koch and Gustavo Rossi. *A Quantitative SWOT-TOWS Analysis for the Adoption of Model-Based Software Engineering* (Escalona et al. 2022)
- Jesús Rosa-Bilbao and Juan Boubeta-Puig. *Model-Driven Engineering for Complex Event Processing: A Survey* (Rosa-Bilbao & Boubeta-Puig 2022)
- Priscila Cedillo, Emilio Insfran and Silvia Abrahao. *Monitoring Cloud Services through Models at Runtime: A Case in an Ambient Assisted Living Environment* (Cedillo et al. 2022)
- Arvid Butting, Judith Michael and Bernhard Rumpe. *Language Composition via Kind-Typed Symbol Tables* (Butting et al. 2022)

The list of experts who reviewed the articles submitted and therefore played an important role are:

- Manuel F. Bertoa (University of Malaga)
- Juan Boubeta-Puig (University of Cádiz)
- Jordi Cabot (ICREA - Universitat Oberta de Catalunya)
- Robert Clarisó (Universitat Oberta de Catalunya)
- Javier Criado (University of Almería)
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- Flo Drux (RWTH Aachen University)
- Francisco Durán (University of Malaga)
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- Luis Iribarne (University of Almería)
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- Bernhard Rumpe (RWTH Aachen University)
- Javier Troya (University of Malaga)
- Manuel Wimmer (Johannes Kepler University Linz)
- Steffen Zschaler (King’s College London)

### 3. Final Words

It has been a pleasure putting together this special issue to recognize the achievements of a friend, colleague, teacher, and jogging partner. We hope you find this special issue insightful

and useful, and that it makes you think of the many contributions of Prof. Antonio Vallecillo.

### 4. Acknowledgments

Thanks to all those authors who submitted papers to this special issue. Many thanks to the reviewers for their timely and accurate reviews and for their helpful suggestions for improving the selected papers. Last but not least, thanks to the JOT Editor in Chief, Prof. Alfonso Pierantonio for all his help with the publication process.

### References

- Barquero, G., Troya, J., & Vallecillo, A. (2019). Trading accuracy for performance in data processing applications. *Journal Object Technology*, 18(2), 9:1–24. doi: 10.5381/jot.2019.18.2.a9
- Burgueño, L., Bertoa, M. F., Moreno, N., & Vallecillo, A. (2018). Expressing confidence in models and in model transformation elements. In *Proc. of the 21th ACM/IEEE international conference on model driven engineering languages and systems (MODELS 2018)* (pp. 57–66). ACM. doi: 10.1145/3239372.3239394
- Butting, A., Michael, J., & Rumpe, B. (2022). Language composition via kind-typed symbol tables. *Journal of Object Technology*, 21(4). doi: 10.5381/jot.2022.21.4.a5
- Cedillo, P., Insfran, E., & Abrahão, S. (2022). Monitoring cloud services through models at runtime: A case in an ambient assisted living environment. *Journal of Object Technology*, 21(4). doi: 10.5381/jot.2022.21.4.a1
- Clarisó, R., Burgueño, L., & Cabot, J. (2022). Managing design-time uncertainty in ocl expressions. *Journal of Object Technology*, 21(4). doi: 10.5381/jot.2022.21.4.a8
- Criado, J., & Iribarne, L. (2022). Reusability and discovery models in software systems: a systematic literature review. *Journal of Object Technology*, 21(4). doi: 10.5381/jot.2022.21.4.a3
- Drux, F., Jansen, N., & Rumpe, B. (2022). A catalog of design patterns for compositional language engineering. *Journal of Object Technology*, 21(4). doi: 10.5381/jot.2022.21.4.a4
- Duran, F. (2022). Rewriting logic and maude for the formalization and analysis of dsmls, and the prototyping of mdse tools. *Journal of Object Technology*, 21(4). doi: 10.5381/jot.2022.21.4.a2
- Escalona, M.-J., de Koch, N. P., & Rossi, G. (2022). A quantitative swot-tows analysis for the adoption of model-based software engineering. *Journal of Object Technology*, 21(4). doi: 10.5381/jot.2022.21.4.a9
- Gogolla, M., & Vallecillo, A. (2011). Tractable model transformation testing. In *Proc of the 7th european conference on modelling foundations and applications (ECMFA 2011)* (Vol. 6698, pp. 221–235). Springer. doi: 10.1007/978-3-642-21470-7\_16
- Gogolla, M., Vallecillo, A., Burgueño, L., & Hilken, F. (2015). Employing classifying terms for testing model transformations. In *Proc. of the 18th ACM/IEEE international conference on model driven engineering languages and systems*

- (*MODELS 2015*) (pp. 312–321). IEEE Computer Society. doi: 10.1109/MODELS.2015.7338262
- Moreno, N., & Vallecillo, A. (2005). A model-based approach for integrating third party systems with web applications. In *Proc. of the 5th international conference on web engineering (ICWE 2005)* (Vol. 3579, pp. 441–452). Springer. doi: 10.1007/11531371\_57
- Muñoz, P., Troya, J., Wimmer, M., & Kappel, G. (2022). Revisiting fault localization techniques for model transformations: Towards a hybrid approach. *Journal of Object Technology*, 21(4). doi: 10.5381/jot.2022.21.4.a7
- Navarrete, F. J., & Vallecillo, A. (2021). Introducing subjective knowledge graphs. In *25th IEEE international enterprise distributed object computing conference, EDOC 2021* (pp. 61–70). IEEE.
- Paige, R. F., Polack, F. A., Zschaler, S., Chiang, T., & Annable, N. (2022). Interface contracts for workflow+ models: an analysis of uncertainty across models. *Journal of Object Technology*, 21(4). doi: 10.5381/jot.2022.21.4.a6
- Rivera, J. E., Guerra, E., de Lara, J., & Vallecillo, A. (2008). Analyzing rule-based behavioral semantics of visual modeling languages with maude. In *Proc. of the 1st international conference on software language engineering (SLE 2008)* (Vol. 5452, pp. 54–73). Springer. doi: 10.1007/978-3-642-00434-6\_5
- Rosa-Bilbao, J., & Boubeta-Puig, J. (2022). Model-driven engineering for complex event processing: A survey. *Journal of Object Technology*, 21(4). doi: 10.5381/jot.2022.21.4.a10
- Troya, J., & Vallecillo, A. (2010). Towards a rewriting logic semantics for ATL. In *Proc. of the 3rd international conference on model transformations (ICMT 2010)* (Vol. 6142, pp. 230–244). Springer. doi: 10.1007/978-3-642-13688-7\_16

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