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EDITORIAL

Report on the state of the SoSyM journal (2023 summary)

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Dear readers,

We are happy to present this first issue of 2024, representing the annual summary of the current state of the journal. It has been a fruitful past year with many new SoSyM papers published and new editors joining the community. As usual, the highlight of the year was the MODELS 2023 community meeting in Västerås, Sweden.

1 Changes at SoSyM

We are delighted to welcome our new editors: Antonio Cicchetti, Jesús Sánchez Cuadrado, Adrian Rutle, and Massimo Tisi! Their expertise and commitment will be instrumental in continuing the effort of SoSyM as a leading publication in the modeling and modeling language community.

Antonio Cicchetti Jesús Sánchez Cuadrado Adrian Rutle Massimo Tisi

At the same time, we bid farewell to two esteemed editors. Andy Schürr was a pioneering force from the early days of SoSyM. Through his significant contributions on triple graph grammars and the transformation of complex data structures, his dedication to managing and editing papers on transformation approaches has been invaluable. Jan Mendling, known for his work in business process, as well as process analysis and management, also retires from the editorial board. We extend our deepest gratitude to both Andy and Jan for their continuous and outstanding support over the years. Their contributions have been pivotal to the growth and success of SoSyM!

2 2023 summary statistics

The six SoSyM issues published in 2023 contained 31 Regular papers, 39 Special Section papers, 4 Theme Section papers, 1 Overview paper, 7 Expert Voices, 1 Memorial,

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8 Guest Editorials, and 1 Erratum. This represents a collection of 91 papers (2,010 pages) published in volume 22. Compared to the 2,553 pages in 2022 the number of pages decreased. This decrease is caused by our efforts to reduce the backlog. Therefore, we published more pages than planned by Springer in past years. During 2023 we were able to reduce the backlog to less than 3 months and started to publish the planned amount of pages again. We are grateful to Elizabeth Dziubela, our Springer Nature liaison, for her commitment and help in reducing the time to publication by processing papers expeditiously after acceptance.

The two-year Impact Factor (IF) for SoSyM decreased slightly to 2.0 (previously at 1.910 in 2021 and 2.211 in 2022). The five-year IF also decreased from 2.423 (which is the highest score in the history of SoSyM) to 2.1. However, the overall trend of the impact factor continued upward since the first impact factor in 2009. Furthermore, the h-5 Google Scholar ranking places SoSyM at #13 among all conferences and journals related to software engineering and programming languages (#14 in 2022). Further rankings can be found at https://www.sosym.org/.

Over the past year, SoSyM received 323 submissions—a slight decrease when compared to the 374 in 2022. The number of downloads continued to increase over the last 6 years. At the end of 2023, there were 354,238 downloaded SoSyM articles during the calendar year (compared to 197,730 in 2021 and 273,171 in 2022).

The acceptance rate in 2023 was 22.22% (after an atypically high rate of 37.6% in 2022). The average time from submission to the final decision (accept or reject) decreased again to 126 days (170 days in 2021 and 162 days in 2022).

3 SoSyM's ten-year most influential paper awards

With each year, we look back through the 10-year history of SoSyM to observe what contributions had the most impact and what topics emerged as most prominent over the decade. We identified the two papers (from the Regular and Theme Section areas) that had the most impact over the past decade since their publication. The selection is based on the ISI citation index among papers published in SoSyM. The following two papers were identified and the corresponding authors had the opportunity to present reflections on their papers at MODELS 2023. We congratulate the authors for these "Most Influential" papers of SoSyM over the past decade!

The **SoSyM 2023 "Ten-year most influential Regular paper award"** was given to:

> Parastoo Mohagheghi, Wasif Gilani, Alin Stefanescu, Miguel A. Fernandez, Bjørn Nordmoen, and Mathias Fritzsche, "Where does model-driven engineering help? Experiences from three industrial cases", In: *Journal on Software and Systems Modeling (SoSyM)*, Volume 12, Issue 3, pp. 619–639, Springer, July 2013. https://doi.org/10.1007/s10270-011-0219-7

The **SoSyM 2023 "Ten-year most influential Theme Section paper award"** was given to:

> Antonio Cicchetti, Davide Di Ruscio, Ludovico Iovino, and Alfonso Pierantonio, "Managing the evolution of data-intensive Web applications by model-driven techniques", In: *Journal on Software and Systems Modeling (SoSyM)*, Volume 12, Issue 1, pp. 53–83, Springer, February 2013. https://doi.org/10.1007/s10270-011-0193-0

More information about the awards can be found at: https://www.sosym.org/awards/.

4 SoSyM's "journal-first" papers at MODELS 2023

In 2023, a solid collaboration continued between SoSyM and the MODELS conference with the organization of the SoSyM "Journal-First" option. This collaboration enables authors of recent SoSyM papers to present their work at MODELS (assuming the paper content has not been presented previously at any other conference). Through this collaboration, SoSyM authors have the opportunity to reach a broad audience to present their work. The 2023 collaboration led to 12 "SoSyM First" papers presented at MODELS. We are very thankful to the MODELS 2023 "Journal-First" Chair (Jörg Kienzle), General Chairs (Antonio Cicchetti and Alfonso Pierantonio), Conference Chair (Federico Ciccozzi), and the PC Chairs (Thomas Kuehne and Gabriele Taentzer) for their help in the integration of the SoSyM "Journal-First" papers into the general MODELS 2023 schedule. The SoSyM papers presented at MODELS 2023 include the following:

- Faezeh Khorram, Erwan Bousse, Jean-Marie Mottu, and Gerson Sunyé, "Advanced testing and debugging support for reactive executable DSLs", In: *Journal on Software and Systems Modeling (SoSyM)*, Volume 22, Issue 3, pp. 819–845, Springer, June 2023. https://doi.org/10.1007/s10270-022-01025-w
- Steffen Zschaler, Erwan Bousse, Julien Deantoni, and Benoit Combemale, "A generic framework for representing and analyzing model concurrency", In: *Journal on Software and Systems Modeling (SoSyM)*, Volume 22, Issue 4, pp. 1319–1340, Springer, August 2023. https://doi.org/10.1007/s10270-022-01073-2
- Stefan John, Jens Kosiol, Leen Lambers, and Gabriele Taentzer, "A graph-based framework for model-driven

optimization facilitating impact analysis of mutation operator properties", In: *Journal on Software and Systems Modeling (SoSyM)*, Volume 22, Issue 4, pp. 1281–1318, Springer, August 2023. https://doi.org/10.1007/s10270-022-01078-x

- Siamak Farshidi, Izaak Beer Kwantes, and Slinger Jansen, "Business process modeling language selection for research modelers", In: *Journal on Software and Systems Modeling (SoSyM)*, published in this issue. https://doi.org/10.1007/s10270-023-01110-8
- Dimitris Kolovos and Alfonso de la Vega, "Flexmi: a generic and modular textual syntax for domain-specific modelling", In: *Journal on Software and Systems Modeling (SoSyM)*, Volume 22, Issue 4, pp. 1197–1215, Springer, August 2023. https://doi.org/10.1007/s10270-022-01064-3
- Antonio Bucchiarone, Maxime Savary-Leblanc, Xavier Le Pallec, Antonio Cicchetti, Sébastien Gérard, Simone Bassanelli, Federica Gini, and Annapaola Marconi, "Gamifying model-based engineering: the PapyGame experience", In: *Journal on Software and Systems Modeling (SoSyM)*, Volume 22, Issue 4, pp. 1369–1389, Springer, August 2023. https://doi.org/10.1007/s10270-023-01091-8
- Thomas Kühne, "Multi-dimensional multi-level modeling", In: *Journal on Software and Systems Modeling (SoSyM)*, Volume 21, Issue 2, pp. 543–559, Springer, April 2023. https://doi.org/10.1007/s10270-021-00951-5
- Istvan David, and Eugene Syriani, "Real-time collaborative multi-level modeling by conflict-free replicated data types", In: *Journal on Software and Systems Modeling (SoSyM)*, Volume 22, Issue 4, pp. 1131–1150, Springer, August 2023. https://doi.org/10.1007/s10270-022-01054-5
- Alessio Bucaioni, Amleto Di Salle, Ludovico Iovino, Ivano Malavolta, and Patrizio Pelliccione, "Reference architectures modelling and compliance checking", In: *Journal on Software and Systems Modeling (SoSyM)*, Volume 22, Issue 3, pp. 891–917, Springer, June 2023. https://doi.org/10.1007/s10270-022-01022-z
- Johannes Erbel and Jens Grabowski, "Scientific workflow execution in the cloud using a dynamic runtime model", In: *Journal on Software and Systems Modeling (SoSyM)*, published in this issue. https://doi.org/10.1007/s10270-023-01112-6
- Bhisma Adhikari, Eric J. Rapos, and Matthew Stephan, "SimIMA: a virtual Simulink intelligent modeling assistant—Simulink intelligent modeling assistance through machine learning and model clones", In: *Journal on Software and Systems Modeling (SoSyM)*, published in this issue. https://doi.org/10.1007/s10270-023-01093-6
- Maxime Savary-Leblanc, Xavier Le Pallec, and Sébastien Gérard, "Understanding the need for assistance in software modeling: interviews with experts", In: *Journal on Software and Systems Modeling (SoSyM)*, published in this issue. https://doi.org/10.1007/s10270-023-01104-6

More information about SoSyM's Journal-First publication process can be found at: https://www.sosym.org/journal_first/.

5 With appreciation to our 2023 reviewers

The vitality of a research community is anchored in the selfless contributions of volunteers acting as reviewers. Our software and systems modeling community has consistently answered the call to assist SoSyM with remarkable enthusiasm. We are immensely thankful for the support rendered by all reviewers in aiding the modeling community. Additionally, we are excited to extend our deep appreciation to those selected as SoSyM's Best Reviewers of 2023. This distinction, awarded for their exceptional technical insights and comprehensive feedback to authors throughout the past year, is a testimony to their dedication. Congratulations to each recipient, who has been honored with a certificate of recognition:

> Daniel Amyot, Francis Bordeleau, Cristina Cabanillas, Dirk Fahland, Hans-Georg Fill, Katharina Großer, Sybren Kinderen, Marco Konersmann, Claudio Menghi, Gergely Mezei, Luca Piras, June Sallou, Maxime Savary-Leblanc, Stefan Strecker, and Irene Vanderfeesten.

The list below represents the names of all reviewers who contributed their expertise by reviewing one or more papers for the journal over the past year. We extend our heartfelt gratitude for their reviews and commend their dedication to the SoSyM community. Their invaluable service plays a crucial role in maintaining the quality and integrity of our publications! For a comprehensive directory of all reviewers, we invite you to visit our website at https://www.sosym.org/reviewers/.

Erika Ábrahám, Omar Alam, Andrew Allen, Joao Paulo Almeida, Hakam Alomari, Daniel Amyot, Amal Anda, Anthony Anjorin, Joao Araujo, Hamna Aslam, Kousar Aslam, Said Assar, Ziggy Attala, Adriano Augusto, Afef Awadid, Kyungmin Bae, Mira Balaban, Luciano Baresi, Bernhard Bauer, Iris Beerepoot, Sadok Ben Yahia, David Benavides, Simona Bernardi, Dirk Beyer, Raheleh Biglari, Stefano Bilotta, Dominique Blouin, Alexander Bock, Dominik Bork, Artur Boronat, Erwan Bousse, Uwe Breitenbuecher, Giovanna Broccia, Jean-Michel Bruel, Hugo Bruneliere, Alessio Bucaioni, Antonio Bucchiarone, Robert Buchmann, Erik Burger, Lola Burgueño, Cristina Cabanillas, Jordi Cabot, Stéphanie Challita, Allaoua Chaoui, Martin

Chapman, Samir Chouali, Stanislav Chren, Axel Christfort, Antonio Cicchetti, Federico Ciccozzi, Robert Clarisó, Loek Cleophas, Rolland Colette, Christian Colombo, Marco Comuzzi, Jesús Sánchez Cuadrado, Gianpaolo Cugola, Alberto da Silva, Istvan David, Frank de Boer, Stijn de Gouw, Juan de Lara, Marne de Vries, Julien DeAntoni, Joachim Denil, Louise Dennis, Claudio Di Ciccio, Juri Di Rocco, Davide Di Ruscio, Claudio Di Sipio, Juergen Dingel, Victoria Döller, Ghizlane El Boussaidi, Maged Elaasar, Gregor Engels, Romina Eramo, Gencer Erdogan, Rik Eshuis, Saad Ezzini, Dirk Fahland, Grigory Fedyukovich, Nicolas Ferry, Peter Fettke, Kathrin Figl, Hans-Georg Fill, Bernd Finkbeiner, John Fitzgerald, Germain Forestier, Fabrizio Fornari, Sophie Fortz, Andrew Forward, Marco Franceschetti, Ulrich Frank, Ulrik Franke, Marc Frappier, Jose Galindo, Diego Garbervetsky, Felix Garcia, Antonio García-Domínguez, Antonio Garmendia, Carlos Gavidia-Calderon, Sebastien Gerard, Simos Gerasimou, Sepideh Ghanavati, Sonia Ghannouchi, Asif Gill, Mario Gleirscher, Martin Glinz, Arda Goknil, Cláudio Gomes, Cesar Gonzalez-Perez, Martijn Goorden, Heerko Groefsema, Katharina Großer, Roberto Guanciale, Giancarlo Guizzardi, Simon Hacks, Mohammad Hamdaqa, Ahmed Hammad, Thomas Hartmann, Jameleddine Hassine, Oystein Haugen, Robert Heinrich, Martin Henkel, Hans-Dieter Hiep, Robert Hierons, James Hill, Knut Hinkelmann, Nico Hochgeschwender, Ta'id Holmes, José Miguel Horcas, Jennifer Horkoff, Falk Howar, Keman Huang, Alfredo Ibias, Calum Imrie, Ludovico Iovino, Florentin Ipate, Marie-Christine Jakobs, Amin Jalali, Matthieu Jimenez, Einar Broch Johnsen, Jürgen Jung, Eduard Kamburjan, Eunsuk Kang, Marta Karas, Gabor Karsai, Timo Kehrer, Jeroen Keiren, Wael Kessentini, Hourieh Khalajzadeh, Djamel Eddine Khelladi, Ferhat Khendek, Joerg Kienzle, Sybren Kinderen, Kathrin Kirchner, Alexander Kittelmann, Stefan Klikovits, Krzysztof Kluza, Tsutomu Kobayashi, Shekoufeh Kolahdouz Rahimi, Dimitris Kolovos, Agnes Koschmider, Svyatoslav Kotusev, John Krogstie, Vinay Kulkarni, Evgeny Kusmenko, An Lam, Kevin Lano, Sander Leemans, Daniel Lehner, Henrik Leopold, Abderrahmane Leshob, Timothy Lethbridge, Emmanuel Letier, Sotirios Liaskos, Hongjie Liu, Yinling Liu, Malte Lochau, Jinzhi Lu, Roman Lukyanenko, Jidong Lv, Alexandre Madeira, Suvodeep Majumder, Monika Malinova Mandelburger, Alessandro Margara, Tiziana Margaria, Beatriz Marín, Julio Marino, Paolo Masci, Raimundas Matulevicius, Asma Mejri, Jan Mendling, Claudio Menghi, Gergely Mezei, Judith Michael, Rakshit Mittal, Irina Mocanu, Michael Moehring, Armin Moin, Nathalie Moreno, Chokri Mraidha, Paula Muñoz, Sadaf Mustafiz, Csaba Nagy, Cornelius Ncube, Clementine Nebut, Bernd Neumayr, Phu Nguyen, Phuong Nguyen, Haron Nqiri, Joshua Nwokeji, Bentley Oakes, Ileana Ober, Andreas Opdahl, Chun Ouyang, Richard Freeman Paige, Elda Paja, Óscar Pastor López, Jérôme Pfeiffer, Luca Piras, Geert Poels, Gregor Polančič, Andrea Polini, Ehsan Poorhadi, Saheed Popoola, Wishnu Prasetya, Andreas Prinz, Henderik Proper, Violet Ka I Pun, Jolyta Ralyté, Vijayalakshmi Ramasamy, Hajo Reijers, Guizzardi Renata, Emmanuel Renaux, Jan Oliver Ringert, Ben Roelens, Colette Rolland, Michael Rosemann, Suman Roychoudhury, Shazia Sadiq, June Sallou, Pablo Sánchez, Pablo Sanchez Barreiro, Jesús Sánchez Cuadrado, Hassan Sartaj, Maxime Savary-Leblanc, Philipp Schlehuber-Caissier, Rainer Schmidt, Gerardo Schneider, Christoph Seidl, Ulf Seigerroth, Arik Senderovich, Vikas Shah, Nikolay Shilov, Andrew Simpson, Monique Snoeck, Pnina Soffer, Hui Song, Jean-Sebastien Sottet, Miroslaw Staron, Stefan Strecker, Martin Steffen, Janis Stirna, Sebastian Stüber, Arnon Sturm, Shuai Su, Gerson Sunye, Silvia Lizeth Tapia Tarifa, Martin Tappler, Paul Temple, Bernhard Thalheim, Massimo Tisi, Damiano Torre, Victoria Torres, Christos Troussas, Javier Troya, Nelufar Ulfat-Bunyadi, Muhammad Aminu Umar, Antonio Vallecillo, Mark van den Brand, Han van der Aa, Dimitri Van Landuyt, M. Birna van Riemsdijk, Irene Vanderfeesten, Daniel Varro, Stef Verreydt, Neil Walkinshaw, Yves Wautelet, Heike Wehrheim, Marco Wehrmeister, Hans Weigand, Bernhard Westfechtel, Marilyn Wolf, Lucas Wollenhaupt, Carson Woo, Andreas Wortmann, Dianxiang Xu, Qinghua Xu, Sobhan Yassipour Tehrani, Alfa Yohannis, Neil Yorke-Smith, Yijun Yu, Anna Zamansky, Philipp Zech, Kaiwen Zhang, Xin Zhao, Alfred Zimmermann, Alois Zoitl, and Steffen Zschaler.

6 Content of this issue

The content of this issue is as follows:

1. Expert voice
   - "Quo Vadis modeling? Findings of a community survey, an ad-hoc bibliometric analysis, and expert interviews on data, process, and software modeling" by Judith Michael, Dominik Bork, Manuel Wimmer, and Heinrich Mayr

2. Regular papers
   - "SimIMA: a virtual Simulink intelligent modeling assistant—Simulink intelligent modeling assistance through machine learning and model clones" by Bhisma Adhikari, Eric Rapos, and Matthew Stephan
   - "Modelling assistants based on information reuse: a user evaluation for language engineering" by Ángel Mora Segura, Juan de Lara, and Manuel Wimmer
   - "How do I find reusable models?" by Maxim Bragilovski, Roni Stern, and Arnon Sturm

- "Understanding the need for assistance in software modeling: interviews with experts" by Maxime Savary-Leblanc, Xavier Le Pallec, and Sebastien Gerard
- "Business process modeling language selection for research modelers" by Siamak Farshidi, Izaak Beer Kwantes, and Slinger Jansen
- "Scientific workflow execution in the cloud using a dynamic runtime model" by Johannes Erbel and Jens Grabowski
- "Verifying consistency of software product line architectures with product architectures" by Hector Duran-Limon, Perla Velasco-Elizondo, Manuel Mora, Maria Meda-Campana, Karina Aguilar, Martha Hernandez-Ochoa, and Leonardo Soto Sumuano
- "Model projection relative to submetamodeling dimensions—A form of submodel circumscribing" by Bernard Carre, Gilles Vanwormhoudt, and Olivier Caron
- "Modelling guidance in software engineering: a systematic literature review" by Shalini Chakraborty and Grischa Liebel

We wish the SoSyM community a joyful New Year full of new scientific findings and contributions! We hope you delight in the articles in this edition, as well as all the upcoming publications for 2024. Additionally, we encourage you to explore the SoSyM articles archive, boasting more than 20 years of scientific achievements!

Stéphanie Challita, Benoit Combemale, Huseyin Ergin, Jeff Gray, Bernhard Rumpe, and Martin Schindler.

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