Guest editorial for EMMSAD'2021 special section

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The EMMSAD (Exploring Modeling Methods for Systems Analysis and Development) conference series organized 26 events from 1996 to 2021, associated with CAISE (Conference on Advanced Information Systems Engineering). From 2009, EMMSAD has become a two-day working conference. From 2017, EMMSAD best papers are invited to submit extended versions for considering their publication in the Journal of Software and Systems Modeling (SoSyM). The main topics of the EMMSAD series have the focus on models and modeling methods for the analysis and development of software information systems of any kind. These are organized into five tracks: (1) Foundations of Modeling & Method Engineering; (2) Enterprise, Business Process & Capability Modeling; (3) Information Systems & Requirements Modeling; (4) Domain-Specific & Ontology Modeling; and (5) Evaluation of Modeling Approaches. The aims, topics, and history of EMMSAD can be also found on its website at http://www.emmsad.org/.

1 Scope

This special section follows the 26th edition of the EMMSAD series, organized in conjunction with CAiSE'21 virtually (originally planned in Melbourne, Australia), June 2021. The program of this edition included 13 long and 1 short papers, divided into four sessions: enterprise modeling, handling models & modeling methods, threat & evidence modeling, and model-driven engineering & applications. These papers, which have been published in [1], show a great magnitude and variety of novel research topics in the modeling area of information systems and software analysis and development. The authors of top-scored papers were invited to submit extended and enhanced versions for consideration in this

special section of Software and System Modeling (SoSyM) journal.

1.1 The papers selected for this special section

This special section presents seven articles. The newly submitted papers went through a rigor review process of two to three rounds, and in the end, all of them were accepted for publication. Below is the list of papers:

1. Anne Gutschmidt, Birger Lantow, Ben Helmanzik, Ben Ramforth, Matteo Wiese and Erko Martins. *"Participatory modeling from a stakeholder perspective: On the influence of collaboration and revisions on psychological ownership and perceived model quality"*—the article presents the design and results of an exploratory study focusing on the influence of direct collaboration versus individual modeling, and the influence of model revisions by modeling experts on psychological ownership and perceived model quality.
2. Simon Hacks, Linus Persson and Nicklas Hersén. *"Measuring and achieving test coverage of attack simulations extended version"*—the article presents a method for assessing the completeness of attack simulation tests. Methodologically, the research follows the action design approach where the validation is done by designing a prototype for the assessment of the coverage of attack steps using the Junit and Meta Attack Language.
3. Sebastian Gottschalk, Enes Yigitbas, Alexander Nowosad and Gregor Engels. *"Continuous situation-specific development of business models: knowledge provision, method composition, and method enactment"*—the article presents an approach to the situation-specific design of business models. Methodologically, the approach follows design science and validates the theoretical proposal by presenting an open-source tool that demonstrates the applicability of the approach using an industrial case.
4. Victoria Döller, Dimitris Karagiannis and Wilfrid Utz. *"MetaMorph: formalization of domain-specific conceptual modeling methods—an evaluative case study,*

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juxtaposition and empirical assessment"—the article proposes a formalism for domain-specific conceptual modeling methods along with evaluative case study and empirical assessment. It contributes to the research topic involving pervasive description of the formalism MetaMorph based on predicate logic. The proposal is evaluated using a case study and an empirical evaluation.

5. Charlotte Verbruggen and Monique Snoeck. *"Practitioners' experiences with model-driven engineering: a meta-review"*—the article presents the design and results of a meta-review analyzing and discussing practical use of modeling languages, as well as the benefits and problems perceived by practitioners.

6. Flavio Corradini, Arianna Fedeli, Fabrizio Fornari, Andrea Polini and Barbara Re. *"FloWare: a model-driven approach fostering reuse and customisation in IoT applications modelling and development"*—the article proposes a model-driven approach to support the development of IoT software applications. The work combines both software product line and the flow-based programming paradigms. It is implemented using the toolchain, for public use, offering several benefits such as reducing the IoT application development complexity and promoting the reuse of decisions and artifacts.

7. José Fabián Reyes Román, Ana León Palacio, Alberto García Simón, Rubén Cabrera Beyrouti and Oscar Pastor. *"Integration of clinical and genomic data to enhance precision medicine: a case of study applied to the retina-macula"*—the article presents the study of the genetic factors of age-related macular degeneration, which is based on the conceptual scheme of the human genome and Search-Identification-Load-Exploitation method. The work focuses on the integration of clinical and genomic data associated with the intention to promote personalized precision medicine available to patients. It argues to provide a missing link between the clinical and genomic data, which is important for the benefit of patients, clinicians, and society to enhance preciseness.

Reference

1. Augusto, A., Gill, A., Nurcan, S., Reinhartz-Berger, I., Schmidt, R., Zdravkovic, J.: Enterprise, business-process and information systems modelling. In: 22nd International Conference, BPMDS 2021, and 26th International Conference, EMMSAD 2021, Held at CAiSE 2021, June 28–29, 2021, Proceedings Vol. 421. Springer (2021)

Iris Reinhartz-Berger is affiliated with the Department of Information Systems, University of Haifa, Israel. She received her MSc and PhD in Information Management Engineering from the Technion–Israel Institute of Technology and her BSc in computer science and applied mathematics from the Technion–Israel Institute of Technology. Her research interests include conceptual modeling, domain analysis, modeling languages and techniques for analysis and design, and requirements engineering. She co-organized a series of domain engineering workshops, in conjunction with the CAiSE conference, and co-edited a book entitled "Domain Engineering: Product Lines, Languages, and Conceptual Models." She co-chairs EMMSAD—Exploring Modeling Methods for Systems Analysis & Development since 2017. She is in the Editorial Board of Software & Systems Modeling (SoSyM), Data & Knowledge Engineering (DKE), Requirements Engineering (RE), and Business & Information Systems Engineering (BISE) journals.

Jelena Zdravkovic is a Professor and Head of Computer and Systems Sciences (DSV) department at Stockholm University. She has a Ph.D. in Computer and Systems Sciences at The Royal Institute of Technology (KTH), as well as the MBA degree in E-commerce. Jelena's research activities include requirements engineering and capability-driven development. Jelena has published around 100 refereed papers in international conferences and scientific journals on the topics of requirements engineering and capability-driven development. She is in the Editorial Board of Springer BISE and RE Journals, as well as a regular reviewer and guest editor for a number of other international journals including several of Springer, Elsevier's Journal of Systems and Software and Information and Software Technology Journal, and IEEE Computing. Jelena has organized a number of international conferences and workshops in the IS Engineering discipline, and she serves in the program committees of many of them.

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