International Workshop on Variability Management for Modern Technologies (VM4ModernTech 2021)

Wesley K. G. Assunção
Pontifical Catholic University of Rio de Janeiro
Rio de Janeiro, Brazil
wesleyklewerton@gmail.com

Inmaculada Ayala
University of Málaga & ITIS Software
Málaga, Spain
ayala@lcc.uma.es

Jacob Krüger
Ruhr-University Bochum & Otto-von-Guericke University
Bochum & Magdeburg, Germany
Jacob.Krueger@rub.de

Sébastien Mosser
Université du Québec à Montréal
Montreal, Canada
mosser.sebastien@uqam.ca

ABSTRACT

Variability is an inherent property of software systems that allows developers to deal with the needs of different customers and environments, creating a family of related systems. Variability can be managed in an opportunistic fashion, for example, using clone-and-own, or by employing a systematic approach, for instance, using a software product line (SPL). In the SPL community, variability management has been discussed for systems in various domains, such as defense, avionics, or finance, and for different platforms, such as desktops, web applications, or embedded systems. Unfortunately, other research communities—particularly those working on modern technologies, such as microservice architectures, cyber-physical systems, robotics, cloud computing, autonomous driving, or ML/AI-based systems—are less aware of the state-of-the-art in variability management, which is why they face similar problems and start to redeveloped the same solutions as the SPL community already did. With the *International Workshop on Variability Management for Modern Technologies*, we aim to foster and strengthen synergies between the communities researching variability management and modern technologies. More precisely, we aim to attract researchers and practitioners to contribute processes, techniques, tools, empirical studies, and problem descriptions or solutions that are related to reuse and variability management for modern technologies. By inviting different communities and establishing collaborations between them, we hope that the workshop can raise the interest of researchers outside the SPL community for variability management, and thus reduce the extent of costly redevelopments in research.

CCS CONCEPTS

• **Software and its engineering** → **Software product lines**.

KEYWORDS

Variability management, software architecture

Workshop Summary

The diversity of customer (e.g., requested functionalities) and technological (e.g., heterogeneous hardware setups) requirements make variability a distinctive property of most modern software systems. If properly managed, variability can be used to adapt systems to changing requirements at design- or even run-time. For instance, tacking the current context into account (e.g., available hardware and functionalities, workload), cloud- and (micro-)service-based systems can adapt their behavior to react to changing requirements (e.g., resource consumption).

In recent years, many modern technologies that involve some form of variability management have gained increasing attention. Several of the challenges such technologies face have already been studied in the context of variability management in the SPL community. Inspired by a SPLC'20 challenge proposal [1], the *International Workshop on Variability Management for Modern Technologies* serves as a means to integrate the knowledge obtained in the SPL community into modern technologies, guiding interdisciplinary research between different communities. Moreover, the workshop opens research on variability management to other communities, involving them in the SPL community and vice versa. For this purpose, we are working with a diverse community towards pushing the state-of-the-art in research and practice of variability management in various domains, auch as: automotive software, autonomous driving, bots in software engineering, cloud computing, cyber-physical systems, DevOps, digital twins, internet of things, (micro-)service architectures, ML/AI-based systems, and robotics. We received four submissions, out of which the program committee accepted three. **Website:** https://sites.google.com/view/vm4moderntech-2021

REFERENCES

[1] Wesley K. G. Assunção, Jacob Krüger, and Willian D. F. Mendonça. 2020. Variability Management meets Microservices: Six Challenges of Re-Engineering Microservice-Based Webshops. In *International Systems and Software Product Line Conference (SPLC)*. ACM, 22:1–6. https://doi.org/10.1145/3382025.3414942