Invited Talk

Dynamic Software Product Lines for Context-aware Systems

Summary: The emerging paradigm of Dynamic Software Product Lines is becoming popular to manage the variability of software systems dynamically and at post-deployment time. In a connected world, where a plethora of Cyber-Physical Systems, IoT devices, smart vehicles, robots, and so on, exploit intensively context knowledge to adapt their behavior at runtime and reduce the burden of human intervention. In other cases, systems must be reconfigured and redeployed several times accordingly to varying user demands and runtime scenarios. To address these issues and extending older proposals from the self-adaptive community using the traditional MAPE-K loop, new research trends from the Software Variability and Software Product Line areas are suggesting new techniques combining context properties with dynamic adaptations and variability mechanisms to provide smarter reconfigurable solutions. In this talk we will analyze the need to modeling the context knowledge of autonomous and adaptive systems and how runtime variability can be used to manage the variability at post-deployment time more efficiently.

Rafael Capilla is an Associate Professor at the Rey Juan Carlos University of Madrid. He received a PhD in Computer Science from his Rey Juan Carlos University, Madrid, Spain. His research focuses on Software Architecture, Software Product Line Engineering, Variability Management and Dynamic Variability among other topics. He is co-editor and co-author of the first book on Systems and software Variability Management (Springer, 2013) with Jan Bosch and Kyo-Chul Kang. He has edited special issues in IEEE Software, Wiley JSEP and Springer REJ and other three for IEEE Software and Journal of Systems and Software. He has also participated in several EU and Spanish research projects and development projects with Spanish companies. Capilla is regular reviewer of well-known international Journals and Magazines and co-author of around 80 conference papers, Journals and book chapters. He has been also guest co-editor of journal issues and he co-organized several International Workshops and General Chair of the 14th European Conference on Software Maintenance and Reengineering, CSMR 2010 (Madrid). Currently he is General Chair of next VAMOS 2018, ICSR 2018 (and probably second General Chair of SPLC 2018). Rafael heads the Software Architecture & Internet Technologies (SAIT) research group in his university.