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To whom it may concern,

Madrid, March 26, 2024

SPLC Most Influential Paper Award Nomination

We, the undersigned, nominate Lotufo et al.'s paper *"Evolution of the Linux kernel variability model,"* presented at the 14th International Software Product Line Conference (SPLC'10).

The paper provided a detailed analysis of the evolution of the Linux kernel variability model. It shed light on the complex process of managing variability in one of the most popular and influential open-source projects worldwide. The authors offered valuable insights into the patterns, challenges, and best practices associated with managing variability in large-scale software systems through thorough research and empirical investigation.

This real-world perspective has been instrumental in bridging the gap between theoretical concepts and practical implementation, enabling researchers and practitioners to understand better the challenges and opportunities associated with variability management.

This paper highlighted the importance of bridging the gap between theoretical concepts and practical implementation in variability management. The real-world perspective has been instrumental in enabling researchers and practitioners to understand better the challenges and opportunities associated with this field. One significant challenge identified in the paper is the difficulty of maintaining the kernel's variability model and code. Developers often refactorize both, but many times, changes in code dependencies are not immediately reflected in the variability model. This can cause problems for developers and users when compiling the kernel.
Also, the paper is notable for being one of the first works that delved into the equivalences between Kconfig, a practical variability language, and the formal feature models used in academia. This innovative

research revealed the intricacies of handling variability in extensive software systems and sparked a wave of subsequent research investigating this essential field of study.

According to Google Scholar, Scopus, and Web of Science, Lotufo et al.'s paper has 234, 111, and 85 citations, respectively, attesting to its impact.

The above summarizes our position on this paper. Below, we list brief paragraphs that provide individual points of justification for this paper's significance.

- Ruben Heradio – Lotufo et al.'s work has influenced my research by indicating the relevance and complexity of the Linux kernel variability model. Since then, pursuing the automated reasoning on Kconfig, the variability language of the Linux kernel, has been a primary goal. See, for example, our papers: *D. Fernandez-Amoros, R. Heradio, C. Mayr-dorn, and A. Egyed. Scalable Sampling of Highly-Configurable Systems: Generating Random Instances of the Linux Kernel, Int. Conf. on Automated Software Engineering (ASE), 2022* and *R. Heradio, D. Fernandez-Amoros, C. Mayr-dorn, and A. Egyed. Supporting the Statistical Analysis of Variability Models, Int. Conf. on Software Engineering (ICSE), 2019*.

- Alexander Egyed and Lidia Fuentes – We cited Lotufo et al.'s work in our paper: *G. G. Pascual, R. E. Lopez-Herrejon, M. Pinto, L. Fuentes, and A. Egyed. Applying multiobjective evolutionary algorithms to dynamic software product lines for reconfiguring mobile applications. Journal of Systems and Software Vol. 103, Pag. 392-411, 2015*. Our paper deals with mobile applications that require dynamic reconfiguration services to self-adapt their behavior to the context changes. Lotufo et al.'s paper helped us better understand the complexities of highly configurable software and realize that dynamic variability typically encompasses a smaller feature subset since many variation points that depend on the hardware of the target device are decided at design time.

Individual confirmation on this joint nomination will be sent by email from each of us below.

Ruben Heradio, Full Professor at the Department of Software Engineering and Computer Systems of the Universidad Nacional de Educación a Distacia (UNED), Spain.

Alexander Egyed, Full Professor and Chair for Software-Intensive Systems at the Johannes Kepler University (JKU), Austria.

Lidia Fuentes, Full Professor at the Department of Lenguajes y Ciencias de la Computación of the University of Málaga (UMA), Spain.