Dear SPLC MIP Award Selection Committee,

We the undersigned nominate the following paper for a Most Influential Paper (MIP) award:

> **Thomas Thum, Don Batory, Christian Kastner "Reasoning about edits to feature models", published in the prestigious conference ICSE 2009, https://doi.org/10.1109/ICSE.2009.5070526**

This can be considered the most relevant paper bringing the concepts that nowadays support the evolution of software product lines. The paper introduces the **theoretical concepts of the evolution of feature models by means of modifications** to the feature model as refactorings, specializations, generalizations, or arbitrary edits; and puts those concepts in practice by computing the differences between two feature models and classifying the changes according to the semantics of the feature model.

Not only works published in the past successfully applied the results of this paper, but very recent and ongoing works still benefits from their contributions, meaning that, this paper still influences the present and future of SPL research.

In summary, w believe this paper deserves the MIP award for the following reasons:

- The influence of this paper has been proved by the extensive application of its results in different areas of SPL engineering, specifically in product line evolution to ensure consistency (e.g., White et al. JSS journal 2014)
- This paper was the key technology that facilitates the improving of SPL tools for managing the evolution of feature models (e.g., SPLOT, FeatureIDE).
- The contributions of reasoning about edits to feature models has also impacted the SPL research in the last decade in different directions such as
    i. providing a formalization for feature model transformations in Model-Driven Engineering approaches for SPL (e.g., Tanhaei et al. IST journal 2016)
    ii. opening a research line to reasoning about the expressiveness of languages for industrial product lines (e.g., Knüppel et al. ESEC/FSE 2017), among others
    iii. providing a clear semantic to distinguish different types of edits (e.g., Horcas et al., JSS, Vol.197, 2023), used to preserve the feature models' semantics after applying different refactorings independently of the language or tool used.

Specific reasons for endorsing this paper from some of the proponents.

Sven Apel – Beside research, the contributions of this paper found their way into many foundational lectures at universities around the world, including Saarland University, Passau University, University of Texas at Austin, University of Brasilia, University of Pernambuco, Ulm University, University of Braunschweig, and University of Siegen.

Rick Rabiser – product line evolution and consistency checking are essential research topics when it comes to practical adoption of product lines. In my industry-academia collaborations, I have relied on this essential groundwork.

José M. Horcas — I recently worked in interoperability of feature model languages and tools, and Thüm's paper inspired my work by providing the semantic difference between the multiple edits that can be done to a feature model and using them in our evaluation methodology to maintain the semantic of the feature models after applying different refactorings regardless the language or tool used (e.g., Horcas et al. JSS Journal 2023).

The above is a brief summary of our position on this paper, endorsed by the hundreds of citations by third-party papers published in relevant venues.

We support the nomination in the strongest possible way – it is not possible to imagine handling evolution and transformation of feature models without the contribution of this paper.

Signed,

Lidia Fuentes, University of Malaga

Rick Rabiser, Johannes Kepler University Linz, Austria

Sven Apel, Sven Apel, Saarland University

Myra Cohen, Iowa State University

José M. Horcas, University of Malaga