

Fuzzy Extensions for Reverse Engineering Repository Models

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Abstract	Reverse Engineering is a process fraught with imperfections. The importance of dealing with non-precise, possibly inconsistent data explicitly when interacting with the reverse engineer has been pointed out before.

In this paper, we go one step further: we argue that the complete reverse engineering process must be augmented with a formal representation model capable of modeling imperfections. This includes automatic as well as human-centered tools.

We show how this can be achieved by merging a fuzzy set-theory based knowledge representation model with a reverse engineering repository. Our approach is not only capable of modeling a wide range of different kinds of imperfections (uncertain as well as vague information), but also admits robust processing models by defining explicit degrees of certainty and their modification through fuzzy belief revision operators.

The repository-centered approach is proposed as the foundation for a new generation of reverse engineering tools. We show how various RE tasks can benefit from our approach and state first design ideas for fuzzy reverse engineering tools.

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