Paper title: **Process Mining Techniques in Simulation Model Adequacy Assessment**

1 Summary

1.1 Motivation/purpose/aims/hypothesis

The research aims to explore the applicability of process mining techniques for model verification and validation, and results analysis of discrete-event system simulation models. The specific focus is on the adequacy assessment of a simulation model in relation to the behavior of a real system.

1.2 Contribution

The paper contributes by introducing a formalized approach to testing the functioning logic of simulation models using process mining techniques. It provides a case study of simulation model adequacy assessment using event logs and route information extraction for model logic verification.

1.3 Methodology

The methodology involves creating a simulation model of a coal terminal at a railway transport junction, running verification tests using process mining techniques, and analyzing the frequency of route selection during simulation. The process mining approach is used to formalize the testing of the functioning logic of the simulation model.

1.4 Conclusion

The research concludes that the process mining approach can be effectively used for model verification and validation, providing objective procedures for assessing model adequacy in the context of a specific project. The positive conclusion on the model's adequacy is supported by the implementation of process mining techniques to analyze the simulation outcomes.

2 Limitations

2.1 First Limitation/Critique

One limitation is the lack of generalization of the data extraction and processing procedures. The paper acknowledges that further research is needed to bridge this gap and provide a more generalized approach.

2.2 Second Limitation/Critique

Another limitation is the preliminary nature of the spent in system timing analysis from the perspective of process mining. The paper suggests that this area requires further development and elaboration.

3 Synthesis

The ideas presented in the paper have potential applications in improving the performance of systems through process mining techniques. Future scopes include the development of more generalized data extraction and processing procedures, as well as further exploration of the application of process mining in system timing analysis for simulation models.