Review of S. Karlsson,
“Exploratory Test Agents for Stateful Software Systems”

Doctoral Consortium,

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Doctoral consortiums are very useful venues for PhD candidates to present their proposed work and to obtain meticulous feedback from experts in the field. It is especially attractive in top-notch conferences such as ICSE and FSE in software engineering.

The testing of industrial-strength stateful systems is complex and challenging. There is a serious state-explosion problem, so that test coverage can only be a heuristic process. The author proposes the use of multiple test agents to automate the interactions with the system under test. Examples may include the fuzzing agent, the smoke-test agent, the chaos agent, the client agent, and the security agent. High-level agents may set the goals for the scrutiny of low-level agents. The author then suggests explicit and implicit models for the agents. They recommend the use of assertions to verify the test results. They will further conduct empirical studies in an industrial setting to validate the proposals.

The objective of my review is not to introduce the above research to readers. After all, it is understandably the early work of a PhD candidate. Rather, I would like to take the opportunity to make recommendations to PhD students who intend to participate in similar doctoral consortiums.

My advice is to submit more concrete proposals, thus enabling the senior researchers to provide solid feedback. Rather than discussing the target research in general terms at an abstract level, it is better to give as much detail as possible, albeit at the risk of receiving stern criticism from experts. We should do our best to postulate the most relevant theory or model. Plan the precise empirical evaluations. Try their feasibility and present convincing preliminary results. In short, we should treat doctoral consortium papers in the same way as proposals for research grants. I hope this will be helpful.