Engineering Student Invited to Prestigious Computer Engineering Seminar

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Industry and leading experts in the computer engineering field gathered in Dagstuhl, a renowned computer science research center in Wadern, Germany this past March. The goal was to find a unified tool interface for probabilistic model checking, which is used to ensure that systems, such as software or networks, work correctly.

Josh Jeppson (back left) was one of seven students invited to a conference in Dagstuhl, a renowned computer science research center in Germany. Photo courtesy of Schloss Dagstuhl.

Among the group was Ph.D. student Josh Jeppson, who was selected for his work with STAMINA, a computer modeling tool he helped create.

"I came to this conference wanting to better understand the processes that occur in essential tools created by computer engineers," Jeppson said.

Schloss Dagstuhl is located in Warden, Germany. The goal of the conference was to find a unified tool interface for probabilistic model checking in systems. Photo courtesy of Jeppson.

STAMINA, or STochastic Approximate Model-checker for INfinite-state Analysis, is a valuable resource for synthetic biologists, computer engineers and system designers. It is integrated with the STORM probabilistic model checker, co-created by Sebastian Junges, one of the organizers for this event.

STORM is a software tool used to analyze and verify finite-state probabilistic systems, but it cannot handle infinite-state systems. When STAMINA and STORM work together, they make the analysis of complex systems much more efficient and scalable.

The Dagstuhl Computer Research Center was built on the remains of Dagstuhl Castle, pictured above. Photo courtesy of Jeppson.

Both tools were inspired by PRISM, one of the first model checker tools that has been developed over more than 20 years. It has yielded a standard set of benchmarks, input language and a de-facto standard to compare with. Modern tools like STORM and STAMINA were created with the interface from PRISM.

David Parker, who was one of the original founders of PRISM, was also an organizer for the seminar. Jeppson said getting to meet Parker and other leading experts was a humbling experience.

"It was great to meet so many talented people in this industry," he said. "I networked and made some good connections, and I am looking forward to directly working with the people who made the tools I use as a basis for my own research."

Jeppson also had the chance to do some sightseeing with others attending the seminar, including visiting Dagstuhl Castle.

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