

Speaker: Jianjun Zhao (Kyushu University)

Title: The Road to Reliable Quantum Software

Abstract: Quantum computing is moving fast, but building quantum software we can really trust is another story. Quantum programs are probabilistic, hard to inspect during execution, and easy to get wrong in ways that are not always obvious. In this talk, I will share some of our work along the road to more reliable quantum software. I will start with the kinds of bugs that appear in quantum programs and the Bugs4Q benchmark, then move to QChecker, a static analysis tool for detecting common bug patterns, and finally look at whether ChatGPT can help repair bugs in quantum programs. These pieces are different, but they follow one simple idea: first understand the bugs, then detect them, and then try to fix them. Together, they are steps toward making quantum software more reliable in practice.