

SEJITS Testing and Debugging Demo

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Types of bugs:

1. Application bug

Symptom: Pure python fails.

Tool: Python debugger

4. Wrong assumptions about specialization

Symptom: Pure python passes; Python-level replay fails but matches C++ execution

Tool: Python-level replay of specialized execution

2. Parallelization bug (Nondeterministic)

Symptom: Data race, serializability violation

Tool: Instrumenting C++ code for active testing

3. C++ translation bug

Symptom: Pure python passes; Python-level replay does not match C++ execution

Tool: Python-level replay of specialized execution

Python programmer

Pure Python Code

Non-specialized. Deterministic.

Python Semantic Model

Sequential. Possibly nondeterministic.

Sequential C++ Code

Sequential. Possibly nondeterministic.

Parallel C++ Code

Multithreaded. Nondeterministic.

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