SciHook: A Language-Agnostic Python-Based Instrumentation Library for Scientific Computing

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Résumé

Runtime monitoring and logging are fundamental techniques for analyzing and supervising the behavior of computer programs. However, supporting these techniques for a given language induces significant development costs that can hold language engineers back from providing adequate logging and monitoring tooling for new domain-specific modeling languages. Moreover, runtime monitoring and logging are generally considered as two different techniques: they are thus implemented separately which makes users prone to overlooking their potentially beneficial mutual interactions. We propose SciHook, a language-agnostic, unifying framework for runtime monitoring and logging and demonstrate how it can be used to define loggers, runtime monitors and combinations of the two, aka. moniloggers.

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