## The ROADRUNNER Dynamic Analysis Framework for Concurrent Programs

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## **Abstract**

ROADRUNNER is a dynamic analysis framework designed to facil-

| Tool Name                        | Size (lines) | Description |  |
|----------------------------------|--------------|-------------|--|
| Utility Tools                    | ADTVe        |             |  |
| ,.21/F536.37601 Tf5.269m 0 Td [N | IPTYs        |             |  |

## Figure 2: Core ROADRUNNER API

1 Tool Abstract Class

Figure 3: LockSet Tool

location, and each tool should modify that shadow location only if it is the location's "current owner." The first tool in the chain is the initial owner, and ownership passes down the tool chain

Figure 7: Instrumentation Example

|                                   |       |        | 1 | <del>vdown (x Base</del> | <del>: Time)</del> |
|-----------------------------------|-------|--------|---|--------------------------|--------------------|
| Tool Chain                        | Basic | +Event | F | Path Inlining            | +Array Lookup      |
| Емрту                             | 52.6  |        |   | 7.2                      | 5.8                |
| Eraser                            | 52.8  |        |   | 10.5                     | 10.1               |
| ERASER: PROTECTING LOCK: ATOMIZER | 54.9  |        |   | 12.5                     | 10.5               |
| FASTTRACK                         | 54.1  |        |   | 9.5                      | 8.2                |