

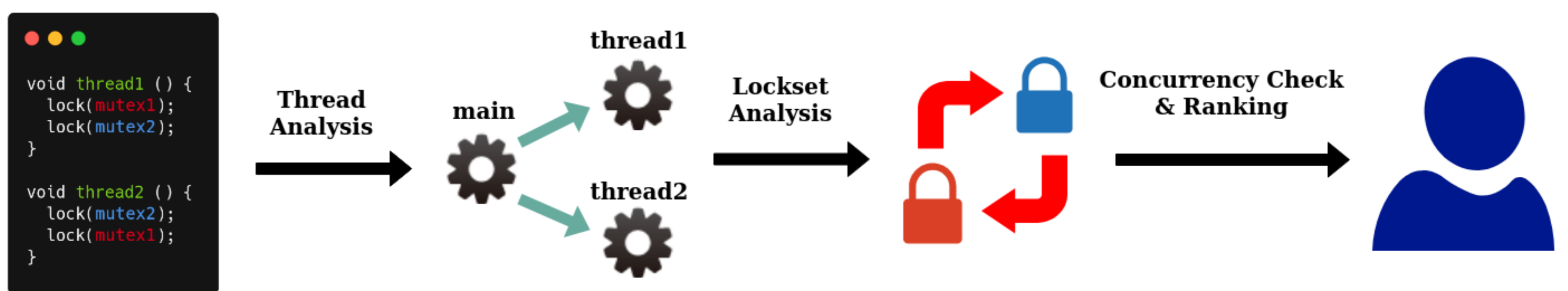
12 STATIC DEADLOCK DETECTION IN FRAMA-C

FRAMA-C: FRAMEWORK FOR MODULAR ANALYSIS OF C PROGRAMS

- A modular, plugin-based framework developed by CEA and INRIA
- The Eva plugin – over-approximates possible values of all variables
- So-far limited support for analysis of concurrent programs



THE DEADLOCK PLUGIN: DEADLOCK DETECTION IN FRAMA-C



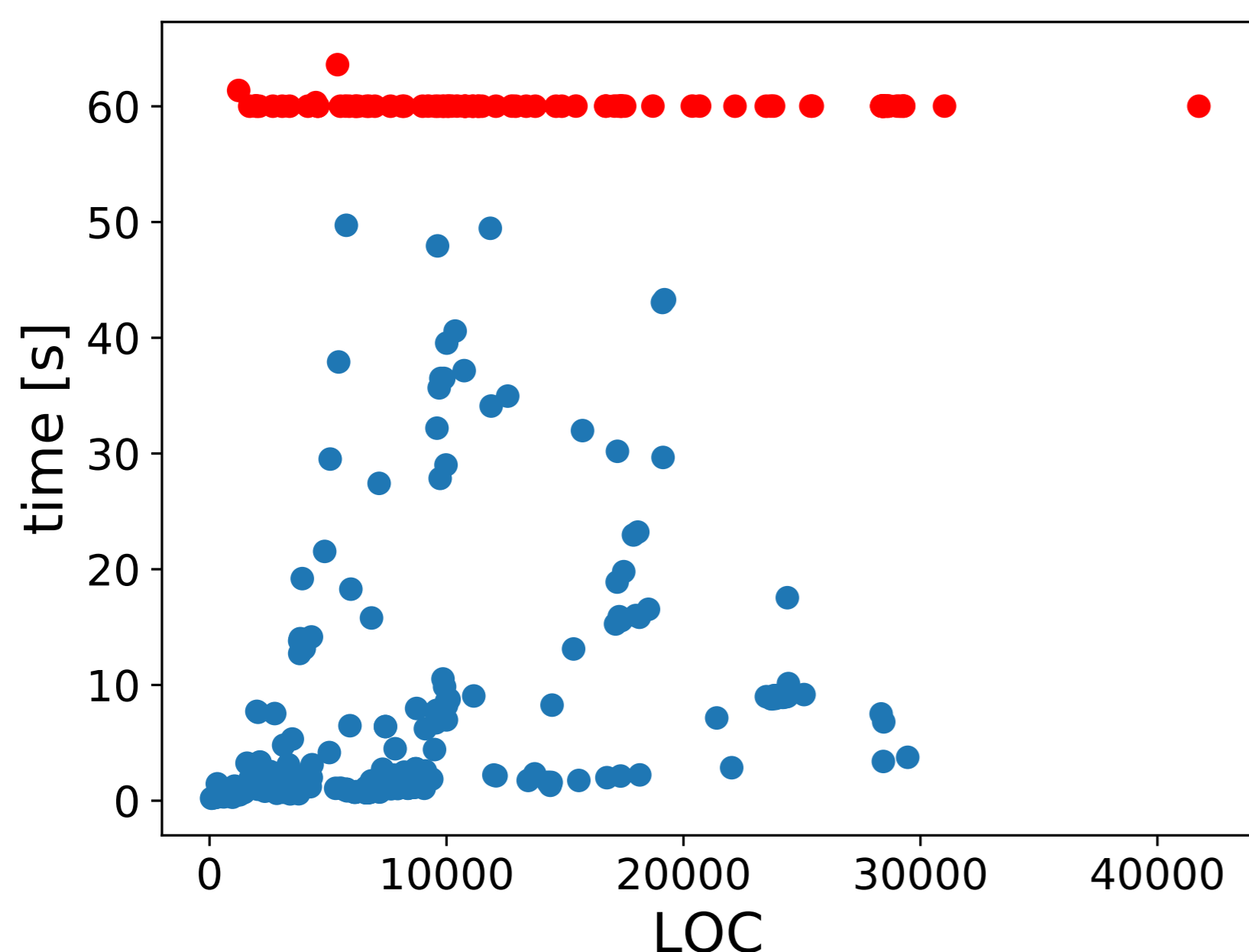
DEADLOCK can run in two modes:

- Using results of EVA – more precise, but may require manual parametrisation
- Without using EVA – faster, handles a wider range of programs

EXPERIMENTS

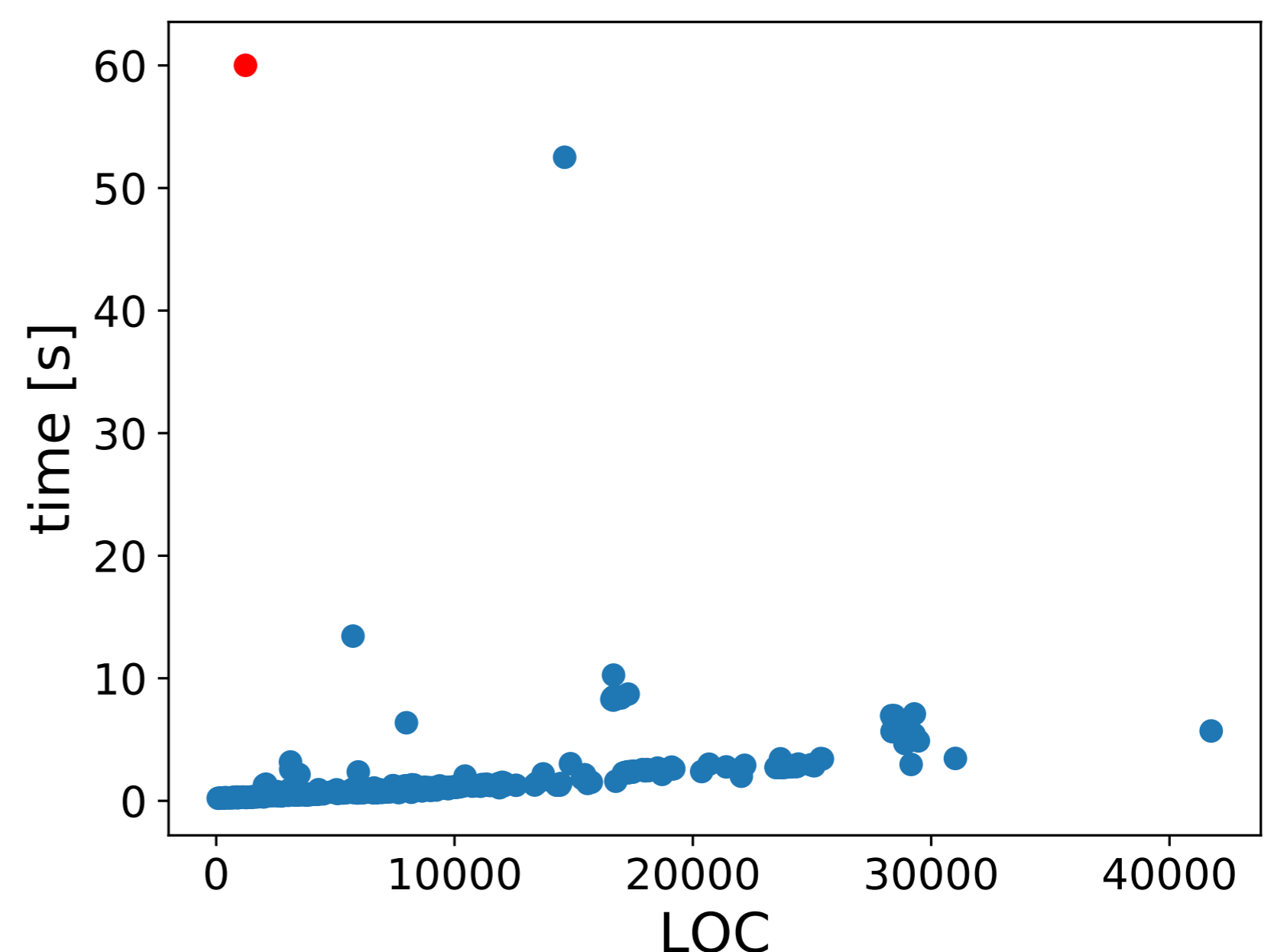
Performed on a set of programs originating from the Debian distribution and using Pthreads API:

Value analysis



	total	correct	error	timeout
Deadlocks	8	8	0	0
No deadlocks	278	181	9	88

No value analysis



	total	correct	error	timeout
Deadlocks	8	7	1	0
No deadlocks	393	357	35	1