

5th International KLEE Workshop on Symbolic Execution

Workshop Introduction

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IMPERIAL

15 October 2026
Munich, Germany



- 5 workshop editions
- Over 450 participants from six continents



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16 October 2026 • Munich, Germany • Co-located with [ASE 2026](#)

Symbolic Execution

A Bit of History: 1975-76

Programming Languages B. Wegbreit
Editor

Symbolic Execution and Program Testing

James C. King
IBM Thomas J. Watson Research Center

Symbolic execution of PL/I programs

A PROGRAM TESTING SYSTEM*

Lori A. Clarke
Computer and Information Science Dept.
University of Massachusetts
Amherst, Massachusetts 01002

Symbolic execution of Fortran programs

SELECT--A FORMAL SYSTEM FOR TESTING AND DEBUGGING PROGRAMS BY SYMBOLIC EXECUTION*

Robert S. Boyer
Bernard Elspas
Karl N. Levitt
Computer Science Group
Stanford Research Institute
Menlo Park, California 94025

Symbolic execution of LISP programs

Symbolic Execution

A Bit of History: 2005

**Symbolic
Execution
for Software
Testing: Three
Decades Later**

Mixed concrete-symbolic execution /
(dynamic symex, concolic execution,
EGT-style symex, whitebox fuzzing...)

Concurrent with a revolution in
SAT & SMT solving

DART: Directed Automated Random Testing

Patrice Godefroid Nils Klarlund
Bell Laboratories, Lucent Technologies
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Koushik Sen
Computer Science Department
University of Illinois at Urbana-Champaign
ksen@cs.uiuc.edu

Execution Generated Test Cases: How to Make Systems Code Crash Itself

Cristian Cadar and Dawson Engler*

Computer Systems Laboratory
Stanford University
Stanford, CA 94305, U.S.A.

A Bit of History

**The challenges—and great promise—
of modern symbolic execution techniques,
and the tools to help implement them.**

BY CRISTIAN CADAR AND KUSHIK SEN

Symbolic Execution for Software Testing: ~~Three~~ Decades Later

Five

COMMUNICATIONS OF THE ACM

AI Revolution

Do we still need traditional program reasoning techniques in the AI era?

1. Accelerated shift from code writing to code reviewing
 - Program analysis techniques are becoming *more* important
2. Effectiveness of AI code reasoning agents depends on the tools they use
 - Program analysis tools are becoming *more* important

KLEE Continues to be Impactful

(At least) 79 published projects using KLEE since the last edition of the workshop on a variety of interesting topics

- <https://klee-se.org/publications/>
- Thanks to Frank Busse for maintaining this list, a great resource for the community



Webpage: <https://klee-se.org/>
Code: <https://github.com/klee/>
Web version: <http://klee.doc.ic.ac.uk/>

Active project

17 years since open-sourced
13 releases
2900+ commits

Active community

100+ contributors to codebase incl. subprojects
450+ subscribers to mailing list
700+ public forks of KLEE repository
3000+ stars on GitHub

KLEE Changes since 4th KLEE Workshop (Apr 2024)

Released KLEE 3.2 in Dec 2025 and KLEE 3.3 in Oct 2026

- New KLEE Web system
- Support for recent LLVM versions
- Improved freestanding runtime
- Support for generating XML test cases
- Support for large concrete objects
- Support for executing unsupported intrinsics via external calls
- Bug fixes, optimisations, refactorings, test cases, documentation, ...

Still need your help!

- Lots of open issues
- Lots of suggested projects
- Need better documentation

New KLEE Web: By Finn Lehmann and Yi Lai

<https://klee.doc.ic.ac.uk/>

The screenshot displays the KLEE Web interface. At the top, there are controls for time (60 s), memory (512 MB), path constraint (off), replay (checked), and flags (only-output-states-coveri). A 'Report issue' button and a 'Run' button are also present.

On the left, under 'Symbolic input', there is a list of examples: get_sign.c, regexp.c, maze.c, hello_world.c, sym_input.c, and double_free.c. The 'History' tab is selected, showing a list of runs with titles like 'tutorial' and 'example'.

The main area shows a C program snippet for a maze game. The code includes comments and function calls like `klee_make_symbolic` and `klee_run`. The program iterates over a set of directions ('w', 's', 'a', 'd') and moves a player in a maze.

On the right, the 'Test cases (8)' section shows 'Explored all paths.' Below this, the 'Raw output (all paths) - 1,643 lines' section displays the following text:

```
Maze dimensions: 11x7
Player pos: 1x1
Iteration no. 0
The player moves with 'w', 's', 'a' and 'd'
Try to reach the price(#)!
+---+
|X|   |#|
| |   | |
| |---| |
| |   | |
| |   | |
| |   | |
| |   | |
+---+

Wrong command!(Only w,s,a,d!)
You lose!
Player pos: 1x1
```

Below the raw output, there are sections for 'Messages - 2 lines' and 'Warnings - 5 lines'. At the bottom, there is a 'Per page' selector (25, 50, 75, 100) and a 'Errors first (0)' checkbox. The status bar at the bottom indicates 'Connected 2465 bytes' and 'Do not submit confidential source code.' The version 'KLEE v3.2' is also shown.



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Program: Two Exciting Keynotes



Maria Christakis
TU Wien
(first session)



Armin Biere
University Freiburg
(last session)

Program: 13 presentations

- 10 regular presentations
- 3 posters, presented in a poster sessions and during the breaks
- 4 additional contributions could not be presented due to visa/travel/health issues

A big thank you to all contributors and participants!

Talk Format

- Each talk has a 20-minute slot
 - 15 minutes for the talk itself
 - 5 minutes for Q&A and switch-over
- Each poster has a 5-minute presentation slot
 - No Q&A but posters will be displayed in during the breaks, please go there!
- All slides (except keynotes) will be displayed from a single machine, to minimise switch-over time
- We will post all slides on the workshop website (with speaker's approval)

Schedule

- 8:45 Opening Remarks, Cristian Cadar
- 9:00 Keynote 1, Maria Christakis (chair: Cristian)
- 10:00 Coffee break and posters
- 10:30 Poster Presentations (chair: Frank)
- 10:50 Exploration Strategies for Symbolic Execution (chair: Frank)
- 12:30 Lunch break and posters
- 14:00 Extended lunch poster session
- 14:20 LLMs, Specifications and Proofs with and for Symbolic Execution (chair: Daniel)
- 16:00 Coffee break and posters
- 16:30 Keynote 2, Armin Biere (chair: Cristian)

KLEE T-Shirts and Stickers

- If you haven't picked up a KLEE T-shirt, see us during the lunch break
- If you have requested a specific size via the survey, tell us
- Otherwise, we hope we still have your size left
- We should still have plenty of stickers left



KLEE Workshop Dinner: Giesinger Bräu

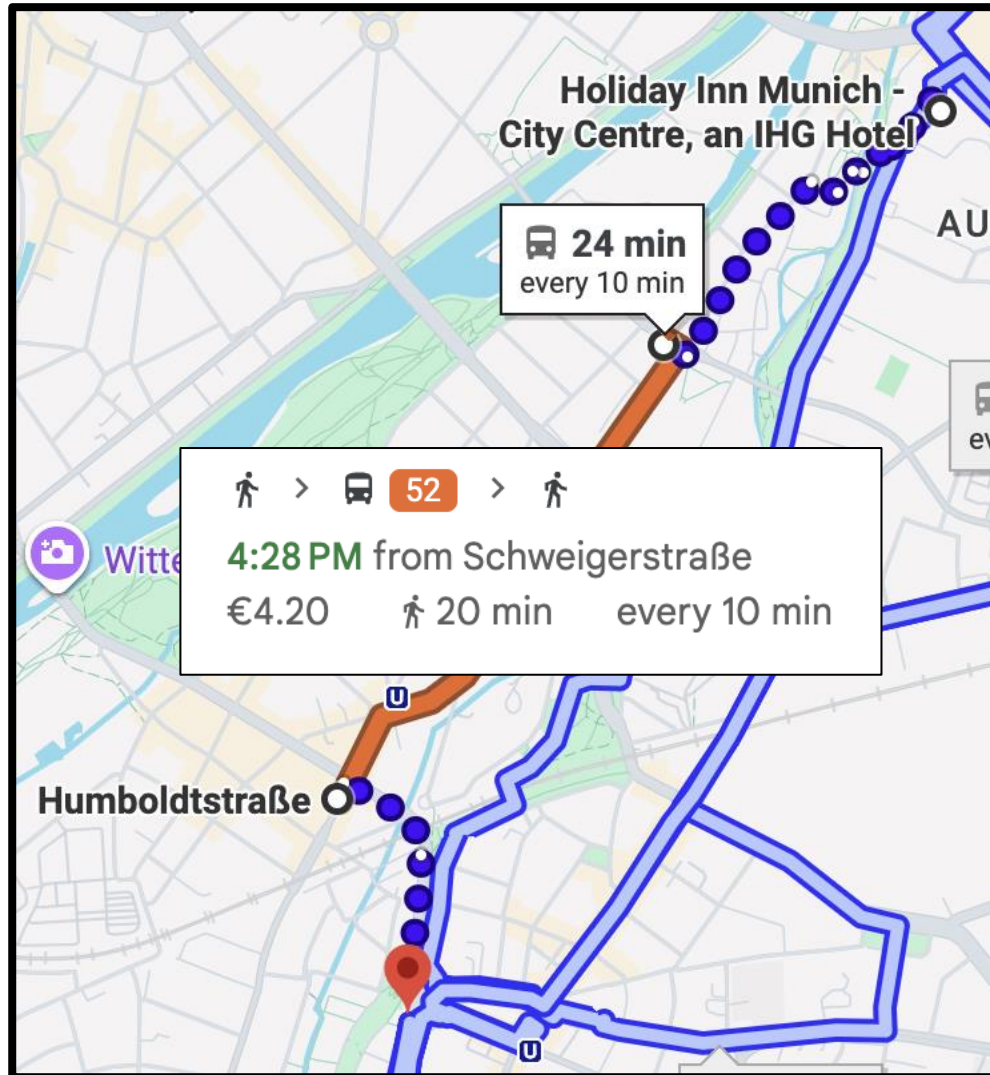
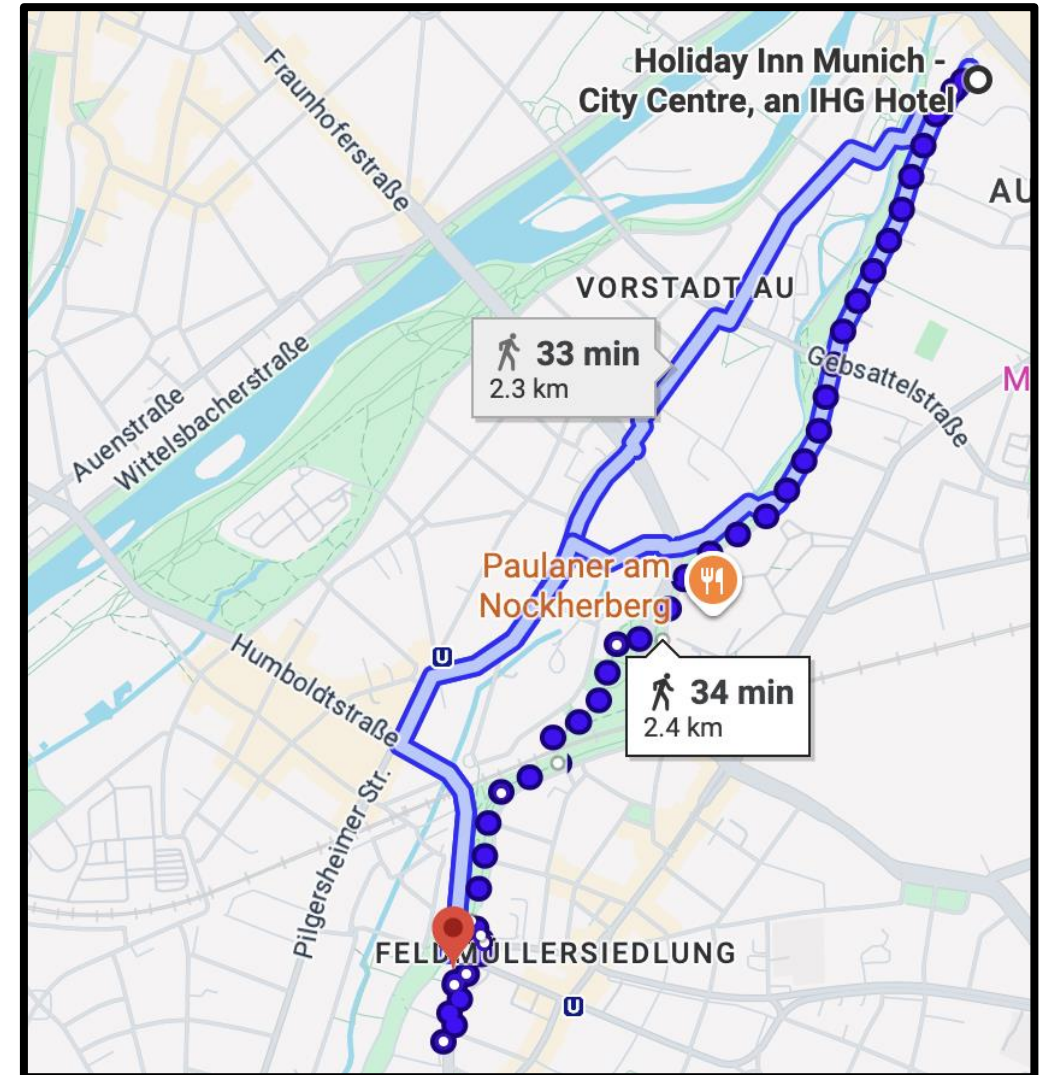
- If you haven't filled out the survey and would still like to join for dinner, see us ASAP
- We have a few places left, but you might not get your preferred menu choices
- We will do our best to accommodate a few more people, but we cannot guarantee they still have space or food



From <https://giesinger-braeu.de/>

Dinner: **Giesinger Bräu (Wirtshaus & Schänke)**

Martin-Luther-Straße 2, 6:30pm start



Workshop Co-chairs

Big thanks to the ASE'26 organisers, particularly:

- Stefan Winter
- Dirk Beyer



Frank
Busse



Daniel
Schemmel



Martin
Nowack

Silver sponsor:



Bronze sponsor:



Supported by



Thank you to the entire KLEE and symex community:

- Presenters
- Participants
- KLEE co-maintainers
- KLEE contributors



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