



## Formal Language Driven Data Analysis Research Group Report

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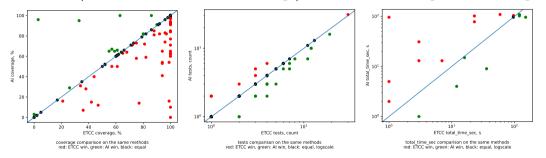
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## AI-Guided Symbolic Execution

- ✓ Reusable infrastructure for training developed and implemented
  - Wrapper for SVM to convert it to server
  - ▶ Python client -AI agent to training
  - ▶ Basic manipulation with neural networks
- ✓ Basic dataset: train/validation/test
- Basic performance tuning
- $\checkmark$  First version of  $\mathcal{AI}$  agent which guide SVM
  - ► Can be used in various engines: we use language-independent features
  - With tuning
- Dataset extension
- GNN quality improvement
- Training infrastructure improvement: performance, flexibility, documentation, ...

## AI-Guided Symbolic Execution: Preliminary results

- 190 methods: algorithms, data structures, real-world projects
- AI our AI-based agent
- ETCC (ExecutionTreeContributedCoverage) one of the best algorithmic strategies



- Same coverage: 132, Al less: 46, Al more: 12
- For same coverage: less tests, comparable time