# Leveraging Runtime Traces to Amplify Test Suites

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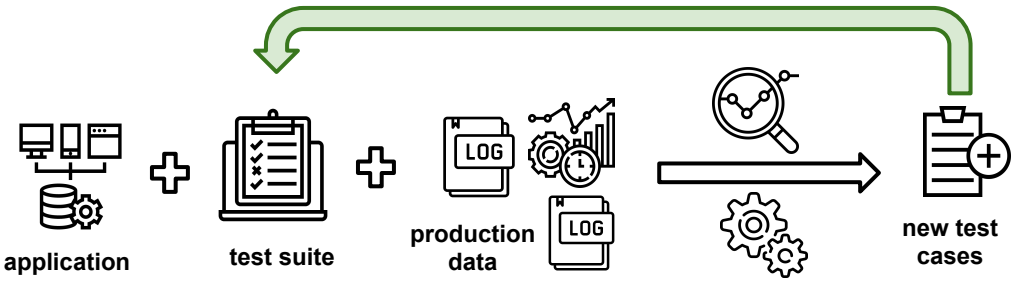
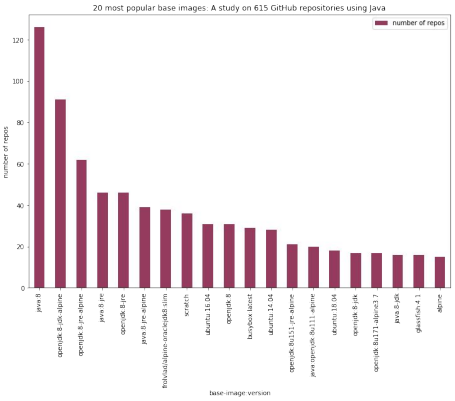
- ★ A **good quality test suite** is indispensable, and should be continually maintained [1]
- ★ Automatic test improvement has been achieved by transforming existing test cases [2]
- ★ We propose to **monitor runtime traces** of applications to automatically generate new test cases for their test suite and potentially enhance robustness




## Phase 1: September 2019 - December 2019
## POBS - Automatic Chaos and Observability for Docker

*(L. Zhang, D. Tiwari, M. Monperrus, B. Baudry, B. Morin)*

- ➔ Empirical study of 1000 public repositories with Java + Docker + most stars on GitHub
- ➔ Perturbation of most common base images with TripleAgent [3]
- ➔ Monitoring of production data with Glowroot [4]
- ➔ Analysis of impact on resilience of popular Java applications by automatically replacing base images in Dockerfile(s) with perturbed ones




**References**

1. P. S. Kochhar, X. Xia, D. Lo, "*Practitioners' Views on Good Software Testing Practices*", 2019 IEEE/ACM 41st International Conference on Software Engineering: Software Engineering in Practice (ICSE-SEIP)
2. B. Danglot, O. L. Vera-Pérez, B. Baudry, M. Monperrus, "*Automatic test improvement with DSpot: a study with ten mature open-source projects*", Empir Software Eng (2019) 24: 2603
3. L. Zhang, M. Monperrus, "*TRIPLEAGENT : Monitoring, Perturbation and Failure-obliviousness for Automated Resilience Improvement in Java Applications*", https://arxiv.org/abs/1812.10706
4. https://glowroot.org
5. Icons courtesy of https://www.flaticon.com