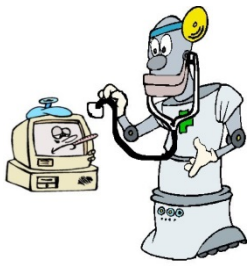
Message from the AST 2018 Program Chairs



Welcome to the 13th edition of the IEEE/ACM Workshop on Automation of Software Test (AST). Software testing is an integral part of the software engineering discipline. Effective and efficient testing with reduced costs and a high fault detection capability is the desirable goal in industry which can be achieved only through automation of all parts of the testing process. In the past decades, a great amount of research effort has been spent on automating all various parts of the testing process such as test case derivation, test selection, test oracle construction, test execution, and others. In addition there has been a rapid growth in automated software testing tools which is stimulated in part through the shift towards agile development practices in industry that demands a high level of automation. Work on this topic has long been published as an important part of software engineering. In recent years, testing has been consistently among the top-most popular topics in submissions to software engineering conferences. The practice of software test automation (TA) has also moved forward significantly in the past few years. However, progress in TA is still required. Software systems have become more and more complicated through the integration of components developed by different vendors and using different techniques in different programming languages running on different platforms. The advent of cloud computing, mobile computing and the Internet of Things has imposed grave new challenges to TA. Those systems become increasingly reactive to changes in their environment, requiring equally adaptive TA approaches. Few software testing tools can currently handle the needed requirements to test such systems.

This year's theme of AST is on **Test Automation (TA) for and with Artificial Intelligence (AI).** AI techniques have recently gained much attention from both the research and industry community which can be witnessed from heated talks on self-driving cars, robot controlled warehouses and other AI enhanced applications. Research in TA must catch up to this trend by developing technologies to test AI systems, as well as applying AI technologies in TA itself which could push automation further. To keep up with the recent surge of interest in AI in academia and industry, it is timely to review the current practices and understand the challenges confronting practitioners when testing AI software systems. This workshop aims at bridging the gap between theory and practice in order to improve the current state of practice and to foster innovative research in the area. The workshop targets solid ongoing work that is already producing notable results.

The 13th edition of AST is organized under the umbrella of the 40th International Conference on Software Engineering (ICSE) which takes place in Gothenburg, Sweden in May/June 2018. The workshop program contains two keynote speeches by Dr. Hong Zhu, Oxford Brookes University, Oxford, UK, on "Software Testing as a Problem of Machine Learning: Towards a Foundation on Computational Learning Theory" and Dr. Wei Xu, Tsinghua University, Beijing, China, on "Towards Software-defined and Self-Driving Cloud Infrastructure". The workshop chairs received twenty paper submissions (one withdrew), from which eight regular papers and three short papers were selected. The acceptance rate of 40% was maintained to insure the quality of the AST workshop as a selective presentation and publication venue. These papers cover particularly the topics of modelling for testing, mutation-based testing, testing of mobile apps and testing of system properties. Some of them report about the use of machine learning and other AI techniques. Select papers will be invited to submit extended versions to the Springer Software Quality Journal.

We would like to thank all authors for their contributions and active participations at AST 2018. We also wish to thank the distinguished invited keynote speakers Dr. Hong Zhu and Dr. Wei Xu for sharing us their insights and cutting edge research achievements. We are grateful to the members of the Program Committee and

additional reviewers for their efforts in promoting the AST workshop and reviewing all submitted papers accordingly. We appreciate their competent handling of the submissions within a short reviewing period. We would like to thank Dr. Antonia Bertolino for her support in managing the AST website and the Steering Committee for their sustained support. Our special thanks go to the ICSE Workshop and Publication Chairs for guiding and supporting us in the organization of the workshop.

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