Preface of the 7th International Workshop on Quantitative Approaches to Software Quality (QuASoQ 2019)

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I. Introduction

After a successful 6th QuASoQ workshop we slightly adjusted the list of topics for the workshop. The topics of interest included

- New approaches to measurement, evaluation, comparison and improvement of software quality
- Metrics and quantitative approaches in agile projects
- Case studies and industrial experience reports on successful or failed application of quantitative approaches to software quality
- Tools, infrastructure and environments supporting quantitative approaches
- Empirical studies, evaluation and comparison of measurement techniques and models
- Quantitative approaches to test process improvement, test strategies or testability
- Empirical evaluations or comparisons of testing techniques in industrial settings

Overall, the workshop aimed at gathering together researchers and practitioners to discuss experiences in the application of state of the art approaches to measure, assess and evaluate the quality of both software systems as well as software development processes in general and software test processes in particular.

As software development organizations are always forced to develop software in the "right" quality, the quality specification and quality assurance are crucial. Although there are lots of approaches to deal with quantitative quality aspects, it is still challenging to choose a suitable set of techniques that best fit to the specific project and organizational constraints.

Even though approaches, methods, and techniques are known for quite some time now, little effort has been spent on the exchange on the real-world problems with quantitative approaches. For example, only limited research has been devoted to empirically evaluate risks, efficiency or limitations of different testing techniques in industrial settings.

Hence, one main goal of the workshop was to exchange experience, present new promising approaches and to discuss how to set up, organize, and maintain quantitative approaches to software quality.

II. Workshop History

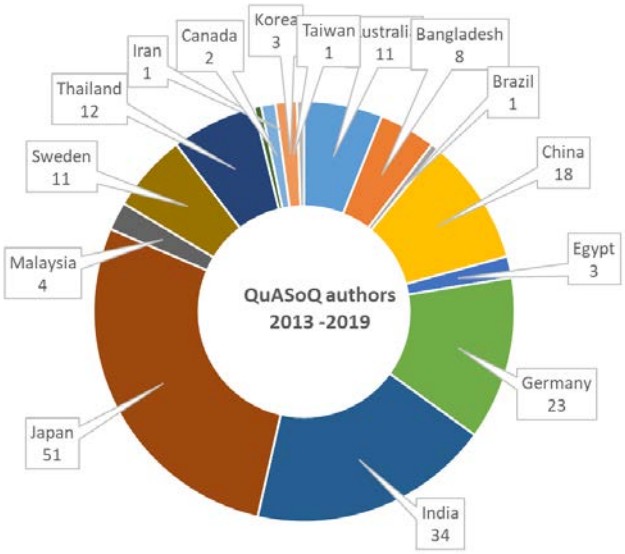
The QuASoQ workshop series has been started in 2013. Since then, it is always organized as a collocated event of the Asia-Pacific Software Engineering Conference (APSEC).

These are the past workshop editions:

- **6th QuASoQ 2018**
  Nara, Japan | CEUR Vol-2273
- **5th QuASoQ 2017**
  Nanjing, China | CEUR Vol-2017
- **4th QuASoQ 2016**
  Hamilton, New Zealand | CEUR Vol-1771
- **3rd QuASoQ 2015**
  New Delhi, India | CEUR Vol-1519
- **2nd QuASoQ 2014**
  Jeju, Korea | IEEE Xplore
- **1st QuASoQ 2013**
  Bangkok, Thailand | IEEE Xplore

Since the first edition 48 papers have been presented; the average acceptance rate it ~ 75 %.

The following chart depicts where the authors of accepted papers come from.



III. Workshop Format

Based on our former experience we wanted the workshop to be highly interactive. In order to have an interesting and interactive event sharing lots of experience, we organized the workshop presentations applying the author-discussant model.

Based on this workshop model, papers are presented by one of the authors. After the presentation, a discussant starts the discussion based on his or her pre-formulated questions. Therefore, the discussant had to prepare a set of questions and had to know the details of the presented paper. The general structure of each talk was as follows:

- The author of a paper presented the paper (20 minutes).
- After that, the discussant of the paper opened the discussion using his or her questions (5 minutes).
- Finally, we moderated the discussion among the whole audience (5 minutes).

IV. Workshop Contributions

Altogether 9 papers were submitted. Finally, these 6 papers were accepted by the program committee for presentation and publication covering very different topics.

- Hirohisa Aman, Sousuke Amasaki, Tomoyuki Yokogawa, Minoru Kawahara: *Empirical Study of Fault Introduction Focusing on the Similarity among Local Variable Names*
- Xingguang Yang, Huiqun Yu, Guisheng Fan, Kang Yang, Kai Shi: *An Empirical Study on Progressive Sampling for Just-in-Time Software Defect Prediction*
- Masayuki Doi, Yoshiki Higo, Shinji Kusumoto: *A Code Clone Curation - Towards Scalable and Incremental Clone Detection -*
- Konrad Fögen and Horst Lichter: *An Experiment to Compare Combinatorial Testing in the Presence of Invalid Values*
- Mahen Gandhi, Amit Kumar, Yugandhar Desai, Sonali Agarwal: *Studying Multifaceted Collaboration of OSS Developers and its impact on Bug Fixing Performance*
- Yoon Chow Yeong, Simon Hacks, Horst Lichter: *Prioritization of EA Debts Facilitating Portfolio Theory*

We grouped the papers into three sessions and added a final round-up slot to present and discuss the major findings of our workshop. The following, we introduce the accepted papers.

V. Summary of the Discussions

About 15 researchers attended the workshop and participated in the discussions. The author-discussant model was well received by the participants and led to intensive discussions among them.

The discussions show, that empirical studies and the results of experiments are of high value and lead to a deeper understanding of the subject that has been investigated.

To conclude, in the course of this workshop the participants proposed and discussed different approaches to quantify relevant aspects of software development. Especially the discussions led to new ideas, insights, and take-aways for all participants.

VI. Acknowledgments

Many people contributed to the success of this workshop. First, we want to give thanks to the authors and presenters of the accepted papers. Furthermore, we want to express our gratitude to the APSEC 2019 organizers; they did a perfect job.

Finally, we are glad that these people served on the program committee (some of them for many years) and supported the workshop by soliciting papers and by writing peer reviews:

- Ana Nicolaescu, Daimler AG, Germany
- Wan M.N. Wan Kadir, UTM Johor Bahru, Malaysia
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- Chayakorn Piyabunditkul, NSTDA, Thailand
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- Hironori Washizaki, Waseda University, Japan
- Hongyu Zhang, University of Newcastle, Australia
- Minxue Pan, Nanjing University, China

Workshop chairs,

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