Report on the 12th International Workshop on Quantitative Approaches to Software Quality (QuASoQ 2024)

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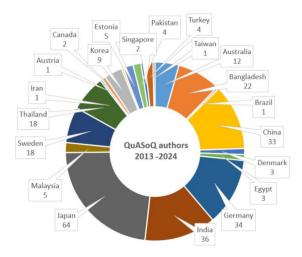
1. Introduction

After a successful 11th QuASoQ workshop, we have again included the following topics of interest:

- New approaches to measurement, evaluation, comparison, and improvement of software quality
- Application of metrics and quantitative approaches in agile projects
- Case studies and industrial experience reports on the 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
- Mining software repositories

Overall, the workshop aimed to bring together researchers and practitioners to discuss their experiences in applying state-of-the-art approaches to measuring, assessing, and evaluating the quality of software systems and software development processes in general and software test processes in particular.

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

Even though approaches, methods, and techniques have been known for quite some time, little effort has been spent exchanging real-world problems with quantitative approaches. For example, only limited research has been devoted to empirically evaluating the 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 discuss how to set up, organize, and maintain quantitative approaches to software quality.

2. Workshop History

The QuASoQ workshop series started in 2013 and has since been organized as a collocated event of the Asia-Pacific Software Engineering Conference (APSEC).

These are the past workshop editions:

- **11th QuASoQ 2023**
  Seoul, Korea | CEUR Vol-3612

- **10th QuASoQ 2022**
  virtual (Japan) | CEUR Vol-3330

- **9th QuASoQ 2021**
  virtual (Taiwan) | CEUR Vol-3062

- **8th QuASoQ 2020**
  virtual (Singapore) | CEUR Vol-2767

- **7th QuASoQ 2019**
  Putrayaya, Malaysia | CEUR Vol-2511

- **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, 79 papers have been presented; the average acceptance rate is 78 %. The chart shown in figure 1 depicts where the authors of accepted papers come from.

Figure 1: Origin of QuASoQ authors

3. Workshop Format

After a successful workshop in Seoul, we were delighted to hold it again in Chongqing, China, as part of the 31st APSEC 2024 conference. However, one author couldn't get a visa in his home country in time, so his presentation had to be held on Zoom.

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

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

- The paper's author presented the paper (20 minutes).
- After that, the paper's discussant opened the discussion using their questions.
- Finally, we moderated the discussion among the audience (5 minutes).

The presentations were divided into two sessions, with a coffee break in between. A chair accompanied each session and ensured the schedule was followed.

4. Workshop Contributions

The following seven papers, covering very different topics, were submitted and accepted by the program committee for presentation and publication (the speaker is set in bold).

- **Selin Aydin**, Dennis Mertens and Ouyu Xu
  An Automated Evaluation Approach for Jupyter Notebook Code Cell Recommender Systems

- **Takumi Katsuie**, Shinpei Ogata, Kozo Okano, Yukako Iimura and Shinobu Saito
  A Report on Sentiment Analysis of Requirements Engineering Artifacts created in University Course

- **Md Arif Hasan** and Toukir Ahammed
  Understanding the Prevalence of Test Smells in Open-source and Industrial Software: An Empirical Study on Python Projects

- **Sheng Zou**, Liqian Chen, Guangsheng Fan, Renjie Huang and Banghu Yin
  F-IKOS: An Abstract Interpretation-based Static Analyzer for Fortran Programs

- **Ramita Deeprom**, Shiyu Yang, Yoshiki Higo, Morakot Choetkiertikul and Chaiyong Ragkhitwet-sagul
  Challenges in Adopting LLaMA: An Empirical Study of Discussions on Stack Overflow

- **Nasir Mehmood Minhas**, Javed Iqbal and Saif Ur Rehman Khan
  Requirements Engineering Practices Model to Incorporate 'Power' Human Value

- **Jianing Sun**, Jiahui Wang, Yuyan Zhu, Xingyu Li, Ying Xie and Jiaxin Chen
  A Novel Approach to Automated Test Script Generation using Large Language Models for Domain-Specific Languages

5. Acknowledgments

- Ana Nicolaescu
  Daimler AG, Germany
- Maria Spichkova
  RMIT University, Melbourne, Australia
- Minxue Pan
  Nanjing University, China
- Lov Kumar
  BITS-PILANI, Hyderabad, India
- Simon Hacks
  Stockholm University, Sweden