Software Quality Days 2021
January 19.-21, 2021, Vienna, Austria

Call for Papers
Scientific Program

www.software-quality-days.com

The 13th Software Quality Days (SWQD) conference and tools fair – one of the largest software quality conferences in Europe - will bring together researchers and practitioners from business, industry, and academia working on quality assurance and quality management for software engineering and information technology.

In 2021, the SWQD conference hosts the 10th scientific program on research and industry experience. The guiding topic for 2021 will be **"Future Perspectives on Software Engineering Quality"**

Main Scientific Program

High software and systems quality are success-critical factors in engineering practices and refer to product, process, and service quality. However, quality attributes have to be embodied within individual phases of software and systems development. In distributed engineering environments, for example, various stakeholders coming from heterogeneous disciplines have to collaborate and interact efficiently. Additional quality attributes with focus on collaboration and data exchange might then apply. Mobile environments, to name another example, typically refer to product quality and include quality requirements regarding usability, interaction, safety, and security. Emerging trends in the area of Big Data can, on the other side, focus on different quality aspects such as (a) how to embody and assure quality in Big Data application or (b) how to use Big Data in context of quality assurance activities such as testing. In the 10th edition of the scientific program at the SWQD, we aim at exploring the various future perspectives and contemporary challenges in Software Engineering Quality.

Following the guiding topic we welcome contributions related to software and systems quality in context of distributed and mobile environments.

Topics of interest for research and industrial experience paper include but are not limited to
- System and software quality management methods
- Improvement of software development methods and processes
- Testing and quality assurance of software and software-intensive systems
- Process and quality assurance automation
- Requirements Engineering and Management
- Project and Risk Management
- Effort and quality estimation
- Metrics (product, process, project)
- Domain specific quality issues such as embedded, medical, automotive systems
- Novel trends in software quality
- Crowdsourcing in Software Engineering
- Quality assurance for Big Data applications.
- Using Big Data for quality assurance activities.

PC Co-Chairs

- Stefan Biffl, TU Wien, Austria
- Dietmar Winkler, TU Wien, Austria
- Daniel Mendez, Blekinge Institute of Technology, Sweden and fortiss GmbH
- Manuel Wimmer, JKU Linz, Austria

Workshop on Academia-Industry Collaboration (WAICol)

Developing software prototypes in the scope of research projects is not a standard engineering task since they are targeted at exploring and evaluating innovative approaches and provide initial implementations of novel features. Therefore, such prototypes often have initial quality issues that must be overcome in order to transfer the research results into industry.

Besides technical challenges, the teamwork and interaction of different partners within research projects play an important role as there are multiple ways on how to shape collaborations. In the workshop on academia and industry collaborations, we aim at discussing experiences, best practices, and lessons learned in such environments.

Topics of interest for this workshop focus on (but are not limited to):
- Challenges in Academia-Industry collaborations,
- processes, methods and tools for transferring research prototypes into industry,
- experience reports, and
- success stories and lessons learned.

We welcome contributions from academics and industry professionals alike.

Workshop Co-Chairs

- Johannes Kross, fortiss, Germany
- Sebastian Voss, fortiss, Germany

Workshop on Quality Assurance for AI (QAAI)

Recent advances in Artificial Intelligence (AI), especially in machine learning and deep learning, and their integration into software-based systems of all domains raises new challenges to engineering modern AI-based systems. These systems are data-intensive, continuously evolving, and self-adapting, which leads to new constructive and analytical quality assurance approaches to guarantee their quality during development and operation in live environments. On the constructive side, for instance, new process models, requirements engineering approaches or continuous integration and deployment models are needed. On the analytical side, for instance, new data, offline and online testing approaches are needed for AI-based systems.

In this workshop, we discuss visions, novel approaches, experiences and challenges of constructive and analytical quality assurance of AI-based systems.

Topics of interest for this workshop include
- Analytical and constructive quality assurance for AI-based systems
- Data, offline and online testing approaches
- Runtime monitoring, coverage and trace analysis of data, models and code
- Testbeds for data-intensive and AI-based systems
- Quality standards and guidelines for developing AI-based systems
- Agile requirements engineering, continuous experimentation, A/B testing

Workshop Co-Chairs

- Michael Felderer, University of Innsbruck, Austria
- Rudolf Ramler, Software Competence Center Hagenberg, Austria

Paper submission information

Main Scientific Program. The main scientific program of SWQD 2021 accepts two categories of conference submissions**.** In both categories, papers with practical relevance and already conducted practical evaluation will be preferred.

- **Technical Research Papers** should describe innovative research in software quality concepts, standards, processes, methods, or tools. They should describe a novel contribution to the field or significantly improve existing solutions. The proposed solution technique or its application to this kind of problem must be novel and sound. The author(s) must provide (empirical) validation of the proposed solution, for example, a proof-of-concept and sound arguments that the solution technique will scale to real-world-sized problems. Results must be stated clearly so that the author(s) or others can further validate them in later research. A technical solution paper should also be clear about its contributions with respect to related work by others and to previous work by the author(s).

- **Industrial Experience Papers** should describe a significant experience in applying software quality technology in a real-world context and should carefully identify and discuss important lessons learned so that other researchers and/or practitioners can benefit from the experience. The author(s) should provide (empirical) evidence supporting the experience and derived conclusions.

The SWQD 2021 conference will provide **best paper awards** in both categories, i.e., technical research papers and industrial experience papers.

Workshop on Academia-Industry Collaboration (WAICol). The workshop on academia/industry collaboration program of SWQD 2021 accepts one category of workshop submissions.

- **Experience Reports** should describe experiences in transferring research results from academia into industrial applications or productive operations (including, but not limited to reports on best practices on development processes and quality management for scientific software that reasonably balance sustainability and flexibility). Experiences can be of different types such as recurring technical challenges and challenges between academic and industrial partners from a collaborative and organizational perspective. The authors should contribute to practice by addressing researchers as well as practitioners and discuss success factors or lessons learned. The organizers explicitly also encourage reports that discuss and analyze negative results.

Workshop on Quality Assurance for AI (QAAI). The workshop on quality assurance for AI technologies accepts one category of workshop submission.

- **Vision or Concept Papers** should present visionary or conceptual ideas for quality assurance of AI-based systems. Concept papers should illustrate the discussed approaches by examples or preliminary evaluations.

- **Experience or Challenge Papers** should describe experiences in applying quality assurance for AI-based systems or open challenges in quality assurance for AI-based systems. The author(s) should properly frame the experiences or challenges so that other researchers and/or practitioners can benefit and base their work on the paper.

Publication of Papers with Springer LNBIP

The scientific program papers will be rigorously peer-reviewed for publication in the well known research publication series Springer LNBIP (see the LNBIP Website for author instructions).

Main Scientific Program

- **Full Papers** should be 15-20 pages (in Springer LNBIP proceedings format) and include an abstract of up to 150 words.
- **Short Papers** should be 8-12 pages (in Springer LNBIP proceedings format).

Workshop Papers

- **Workshop papers** will be published in a dedicated section related to the workshop of the proceedings and should be 4-8 pages (in Springer LNBIP proceedings format).

The language of the scientific program is English.

Papers must contain original unpublished work, describe significant novel contributions, and provide evidence on the validation of results. In particular, reports on industrial applications are welcome. Papers must not have been previously published or submitted for review elsewhere.

All scientific program contributions will be reviewed by the international Program Committee on their scientific merit and relevance to the conference topics and may be accepted as regular or short papers. Accepted papers will be included in the proceedings, published by Springer LNBIP (abstracted/-indexed in ISI Proceedings, DBLP, EI and Scopus), and the Springer Digital library.

If accepted, papers must be personally presented at the Software Quality Days 2021 Conference by the author or one of the co-authors. The first presenting author **can participate free of charge** at the two conference days. **Additional authors/presenters can participate at discounted partner fee.**

Paper Submission

Authors are encouraged to submit a PDF version of their paper via EasyChair (https://easychair.org/conferences/?conf=swqd2021) by selecting either:

- Main Program: Scientific Research Paper
- Main Program: Industrial Experience Paper
- Workshop on Academia/Industry Collaboration (WAICo)
- Workshop on Quality Assurance for AI (QAAI)

Please select the paper category (i.e., technical research paper of industry experience paper during the submission process. The assignment to full and/or short papers is implicitly given by the number pages per submission.

Important Deadlines

- **Full Paper Submission: 22.06.2020 (extended)**
- Notification of accepted/rejected papers: 03.08.2020
- Camera-ready paper for Springer Publication: 28.08.2020
- Conference date: 19.-22.01.2021

Common Program Committee for Tracks and Workshops

- Maria Teresa Baldassarre, University of Bari, Italy
- Tomas Bures, Charles University, Prague, Czech Republic
- Matthias Book, University of Iceland, Iceland
- Ruth Breu, University of Innsbruck, Austria
- Maya Daneva, University of Twente, The Netherlands
- Deepak Dhungana, University of Applied Sciences, Krems, Austria
- Frank Elberzhager, Fraunhofer IESE, Germany
- Michael Felderer, University of Innsbruck, Austria
- Henning Femmer, Qualicen GmbH, Germany
- Gordon Fraser, University of Passau, Germany
- Nauman Ghazi, Blekinge Institute of Technology, Sweden
- Volker Gruhn, University of Duisburg-Essen, Germany
- Roman Haas, Technische Universität München, Germany
- Jens Heidrich, Fraunhofer IESE, Germany
- Helena Holmström Olsson, University of Malmö, Sweden
- Frank Houdek, Daimler AG, Germany
- Marcos Kalinowski, Pontifical Catholic University of Rio de Janeiro, Brazil
- Marco Kuhrmann, University of Passau, Germany
- Eda Marchetti, ISTI-CNR, Italy
- Kristof Meixner, TU Wien, Austria
- Emilia Mendes, Blekinge Institute of Technology, Sweden
- Paula Monteiro, CCG-Centro de Computação Gráfica, Portugal
- Jürgen Münch, University of Reutlingen, Germany
- Oscar Pastor, Universitat Politècnica de València, Valencia, Spain
- Martin Pinzger, Universität Klagenfurt, Austria
- Dietmar Pfahl, University of Tartu, Estonia
- Rick Rabiser, Johannes Kepler University Linz, Austria
- Rudolf Ramler, Software Competence Center Hagenberg, Austria
- Felix Rinker, TU Wien, Austria
- Miroslaw Staron, University of Gothenburg, Sweden
- Rini Van Solingen, Delft University of Technology, The Netherlands
- Daniel Varro, University of Technology and Economics, Budapest, Hungary
- Sebastian Voss, fortiss GmbH, Germany
- Laura Waltersdorfer, SBA Research, Austria
- Stefan Wagner, University of Stuttgart, Germany