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Quality of Information and Communications Technology


13th International Conference, QUATIC 2020
Faro, Portugal, September 9–11, 2020
Proceedings

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Preface

The International Conference on the Quality of Information and Communications Technology (QUATIC) serves as a forum for disseminating advanced methods, techniques, and tools in support of quality approaches to ICT engineering and management. Practitioners and researchers are encouraged to exchange ideas and approaches on how to adopt a quality culture in ICT process and product improvement and to provide practical studies in varying contexts.

QUATIC 2020 was led by Martin Shepperd (Brunel University London, UK) and Fernando Brito e Abreu (University Institute of Lisbon, Portugal) as program chairs. The organizing chair of this 13th edition of QUATIC was Alberto Rodrigues da Silva (University of Lisbon, Portugal) and was locally organized by the University of Algarve, Portugal, with Paula Ventura Martins and Marielba Zacarias. QUATIC 2020 was planned to be held on September 9–11, 2020, in Faro, Algarve, Portugal. Unfortunately, due to the effects of the COVID-19 pandemic, QUATIC 2020 was conducted as a fully online conference.

This volume is a collection of high-quality peer-reviewed research papers received from all over the world. QUATIC 2020 attracted a good number of submissions from different areas spanning over several thematic tracks, proposed in the call for papers, in various cutting-edge technologies of specialized focus, organized and chaired by eminent experts of each field. The following eight of those thematic tracks correspond, on a one-to-one basis, to QUATIC 2020 sessions:

- Quality Aspects in Machine Learning, AI and Data Analytics (Leandro Minku, UBir, UK)
- Evidence-Based Software Quality Engineering (Tracy Hall, LU, UK)
- Human and Artificial Intelligences for Software Evolution (Nicolas Anquetil, Inria, University of Lille1, France)
- Process Modeling, Improvement and Assessment (Karol Frühauf, Infogem AG, Switzerland)
- Software Quality Education and Training (Claudia Werner, UFRJ, Brazil)
- Quality Aspects in Quantum Computing (Manuel Serrano, UCLM, Spain)
- Safety, Security and Privacy (Ana Rosa Cavalli, IPPs, Télécom SudParis, France)
- ICT Verification and Validation (Antonia Bertolino, ISTI-CNR, Italy)

Three additional thematic tracks were proposed in the call for papers, but due to the lesser number of submissions and the exigent review process, they had to be merged in a joint session named RE, MDD and Agile. The original tracks were:

- ICT Requirements Engineering (Luis Olsina, UNLPam, Argentina)
- Agile Methods (Kai Petersen, FUAS, Germany, and Blekinge Institute of Technology, Sweden)
- Model-Driven Methods (Manuel Wimmer, JKU Linz, Austria)

Technical Papers Summary

The Technical Program Committee of QUATIC 2020 was made up of 153 international academic and industrial domain experts, from organizations in 29 different countries on 5 continents. Based on a rigorous peer-review process by the Technical Program Committee members along with external experts as reviewers, the best quality papers were identified for presentation and publication.

The review was carried out in a double-blind process with a minimum of three reviews per submission. Submitted papers came from more than 20 countries and accepted papers originated in organizations from Spain (8), Italy (6), France (5), Portugal (4), Brazil, Germany, the UK (3), among others. Out of the submission pool of 81 papers, 27 (33.3%) were accepted as full papers for inclusion in the proceedings and 12 (14.8%) as short papers.

Invited Talks

QUATIC 2020 was fortunate to have three invited talks presented by outstanding keynote speakers. The first keynote was by Tom Mens at the University of Mons, Belgium, where he has directed the Software Engineering Lab for over 15 years. He co-edited two Springer books *Software Evolution* and *Evolving Software Systems*, and published numerous highly-cited software engineering articles in peer-reviewed international software engineering conferences and journals. His talk was titled: “Is my software ecosystem healthy? It depends!”

The second keynote speaker was Letizia Jaccheri from the Department of Computer Science of the Norwegian University of Science and Technology, Norway, where she was the head of the department from 2013 to 2017. Besides having published numerous highly-cited software engineering articles in peer-reviewed international software engineering conferences and journals, she is an ACM Distinguished Speaker. Her talk was titled: “From software through art to social entrepreneurship.”

The third talk was given co-jointly by João Paulo Carvalho and João Nunes from Quidgest SA, a very active voice from the Portuguese IT industry. João Paulo Carvalho is Founder and Senior Partner of Quidgest, and João Nunes is a technology enthusiast, business savvy problem-solver, and white-hat hacker. Quidgest is a global technology company, headquartered in Lisbon, Portugal. With over 30 years of experience, Quidgest has been a pioneer and a leader in the modeling and automatic generation of software, with two main resources: the Genio platform and an R&D team exclusively dedicated to the development of new features and technologies. Their talk was titled: “Built-In Quality in Software Development Automation with Models and Artificial Intelligence.”

SEDES Doctoral Symposium

In addition, there was a co-located doctoral student symposium, chaired by Vasco Amaral (Universidade Nova de Lisboa, Portugal), with proceedings published as a standalone volume of the CEUR Workshop Proceedings series. CEUR-WS.org is a free open-access publication service operated by Aachen University, Germany. We are particularly pleased to support this event, as the doctoral students represent much of the future for our community.

September 2020

Martin Shepperd
Fernando Brito e Abreu
Alberto Rodrigues da Silva
Ricardo Pérez-Castillo

Acknowledgments

As proceedings editors, we wish to thank all the people and organizations that directly or indirectly supported this event. Thanks to the thematic track and PhD symposium chairs and all other members of the Scientific Committee for their many contributions and reviews that guarantee the overall quality of the QUATIC 2020 conference.

Thanks to our colleagues from the University of Algarve for all the organizational details required for hosting the conference, despite the fact that the constraints and difficulties associated with the pandemic obliged us to do it fully online. Thanks to our colleagues that participate at different levels in the organization of the conference. Thanks to the QUATIC's Steering Committee members for their guidance and support throughout the whole process.

Also, a special thanks to all the organizations involved in this conference, including promoters (IPQ and CS03), supporters (University of Algarve, Brunel University, ISCTE-IUL, IST-UL, UCLM, FCT-UNL, FE-UP, University of Minho, CNR, and University of Coimbra), sponsors (ACM, Quidgest, and ATOS), and partners (NEEI/UALG and APQ).

Finally, but not least, special thanks to all the authors and participants at the conference. Without their efforts, there would be no conference or proceedings. Thank you for contributing to the critical mass of researchers who keep this conference alive for what we expect to be many years to come.

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¹ Merge of three proposed tracks (in the CFP), due to the number of accepted submissions.

² SEDES has separate proceedings, published as a CEUR volume.

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