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Third International Workshop on Data-Centric Dependability and Security (DCDS)

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On behalf of the Organizing Committee, it is our pleasure to welcome you to the third International Workshop on Data-Centric Dependability and Security (DCDS), co-located with the 51st IEEE/IFIP International Conference on Dependable Systems and Networks (DSN 2021) in Taipei, Taiwan on Monday, 21 June 2021.

Today's computing systems are increasingly networked, complex and diverse, integrating multiple distinct components with different configurations. They operate under increasing scales and in dynamic operating environments, generating more and more functional and non-functional data and processing a myriad of data received from other systems. Along with open source intelligence, these data can be fused and exploited to improve the security and dependability of systems, making them more resilient to cyberattacks, accident faults and unexpected operating conditions. Additionally, as systems grow in complexity and size, they become harder to manage and report on. This calls for solutions combining the latest advances in areas such as large-scale data processing, data science, visualization and machine and statistical learning.

Dependability and security are of the utmost importance for computing systems. Due to the scale and complexity of current systems, both aspects are a permanent and growing concern in industry and academia. On the one hand, the volume and diversity of functional and non-functional data, including open source information, along with increasingly dynamical operating environments, create additional obstacles to the dependability and security of systems. On the other hand, it creates an information rich environment that, leveraged by techniques from modern data science, machine and statistical learning, and visualization, will contribute to improve systems resilience in contexts of dynamic operating environments and unexpected operating conditions. As such, there is a strong demand for production-ready systems leveraging from data-centric solutions able to improve and, adaptively, maintain the dependability and security of computing systems.

DCDS'21 aims at providing researchers with a forum to exchange and discuss scientific contributions and open challenges, both theoretical and practical, related to the use of data-centric approaches that promote the dependability and cybersecurity of computing systems. We want to foster joint work and knowledge exchange between the dependability and security communities, and researchers and practitioners from areas such as machine and statistical learning, and data science and visualization. The workshop provides a forum for discussing novel trends in data-centric processing technologies and the role of such technologies in the development of resilient systems. It aims to discuss novel approaches for processing and analysing data generated by the systems and information gathered from open sources, leveraging from data science, machine and statistical learning techniques, and visualization. The workshop shall contribute to identify new application areas as well as open and future research problems, for data-centric approaches to system dependability and security.

The workshop features one session, including three research papers. We received three submissions (two regular papers), of which we accepted all papers. The papers were selected by the program committee based on reviews – each paper was reviewed by at least four PC members. The workshop will have three sessions organized as follows:

The first session will feature a keynote by Nils Ole Tippenhauer (CISPA, Saarland University) on security in CPS and the need for benchmark datasets. The second session presents research papers present the usage of data-centric on system logs and network traffic for security. In the last session will feature a keynote by Michael Kamp (University of Monash, Australia) on secure and trustworthy federated learning.

We would like to thank the program committee members for their collective efforts in reviewing the papers and for helping us develop the workshop program. Moreover, we would like to thank the organizers of the DSN conference for their help and support of the DCDS workshop and the community for their valued contributions to the workshop.

Program Committee:

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