International Workshop on Cyber Range Technologies and Applications (CACOE 2020)

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Preface

Cyber ranges are virtual environments (e.g., cyber-physical labs and private clouds) meant to represent real cyber environments. Analogous to a shooting range, a cyber range is a safe place to test and explore various types of cyber attacks without jeopardizing any operational systems or business processes. There are countless examples of when cyber ranges are been used to advance knowledge in cyber security and countless examples of training programs and larger exercises that have used cyber ranges to reach their learning goals. Unfortunately, setting up events in a cyber range can be difficult and error-prone. This is not strange, because it is often expected that a few cyber range engineers should both instantiate and manage cyber environments that normally require a whole IT-department and simulate realistic user activity in these environments. Nevertheless, tools to support this process is warranted. Furthermore, since the use of cyber ranges can be costly compared to alternatives, such as computer modeling and tabletop exercises, more knowledge of their utility to different types of problems is also desirable.

At the International Workshop on Cyber Range Technologies and Applications (CACOE 2020) researchers and practitioners meet to discuss technologies related to cyber ranges as well as experiences from applying cyber ranges to solve different problems. There is a wide range of topics of interest in this area, including for example: design of large-scale exercises, design of experiments, analysis/reviews/tests of tools and components for building large technical infrastructures, automated machine configuration and deployment, event and scenario management, simulation of benign or malicious users, event monitoring and evaluation, data management, event operating environments and scenarios modelling, metrics and maturity levels, measurements of training effects and capabilities, applications to test cyber security properties, human factors in training and exercises, software as a service (SaaS) solutions, security and privacy challenges, simulation of tools and components from various systems (e.g., industrial control systems, cyber-physical systems, legacy systems).

The proceedings of the 2nd International Workshop on Cyber Range Technologies and Applications (CACOE 2020), held on September 7, 2020, contain seven papers and cover a variety of topics. For example, the papers present ideas on how to use cyber ranges for learning during exercises and how to design events in cyber ranges in order to test the vulnerability of computer networks. The proceedings also provide concrete examples of how cyber ranges can be used to further incident handling processes of organizations, test technical defense systems, and develop automated vulnerability testing tools. In addition, the proceedings describe tools that manage cyber security exercises in cyber ranges and specify general requirements on cyber ranges for training purposes.

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