Combinatorial Security Testing Course

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BIOS

is a Key Researcher with SBA Research, Austria, for the "applied discrete mathematics for information security" research area where he is leading the combinatorial security testing team. He is also an Adjunct Lecturer with Vienna University of Technology and a Distinguished Guest Lecturer with Graz University of Technology. His research interests include combinatorial designs and their applications to software testing, combinatorial testing in particular, applied cryptography and optimization algorithms, and information security. He holds a Ph.D. in Discrete Mathematics and Combinatorics (2011) from the National Technical University of Athens.

Prior to joining SBA Research, he was within the Project Team SECRET of INRIA Paris-Rocquencourt Research Center working on the design and analysis of cryptographic algorithms. His research was supported by a 3-year Marie Curie Fellow grant (2012-2015) awarded by the ERCIM through the EU-funded ``Alain Bensoussan'' Fellowship Programme. He is the author of over 70 papers in discrete mathematics and their applications to computer science and a Fellow of the Institute of Combinatorics and its Applications (FTICA). He was the general chair of MACIS 2017 and also PC chair for IWCT (2017 and 2018).

Rick Kuhn is a computer scientist in the Computer Security Division of the National Institute of Standards and Technology. He has authored two books and more than 100 conference or journal publications on information security, empirical studies of software failure, and software assurance, and is a fellow of the Institute of Electrical and Electronics Engineers (IEEE). He co-developed the role based access control model (RBAC) used throughout industry and led the effort that established RBAC as an ANSI standard.

Previously he served as Program Manager for the Committee on Applications and Technology of the President's Information Infrastructure Task Force and as manager of the Software Quality Group at NIST.

ABSTRACT

Combinatorial methods have attracted attention as a means of providing strong assurance at reduced cost, but when are these methods practical and cost-effective? This tutorial explains the background, process, and tools available for combinatorial testing for security, including illustrations based on industry's experience with the method.

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