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Graphical Models for Security

6th International Workshop, GraMSec 2019
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Revised Papers

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Preface

This volume includes all the contributions made to the 6th edition of the International Workshop on Graphical Models for Security (GraMSec 2019). As in the previous four editions, GraMSec 2019 was held as a workshop co-located with the IEEE Computer Security Foundations Symposium (CSF), which was in its 32nd edition (CSF 2019). Both events were hosted at the Stevens Institute of Technology campus located at 1 Castle Point Terrace in Hoboken, New Jersey, USA. GraMSec 2019 was held on June 24, 2019, as a pre-conference workshop.

This edition of GraMSec reflected on the diversity of graphical approaches for analyzing the security of systems. The traditional priority area of GraMSec has been the area of formal methods underpinning graphical models such as attack trees and attack graphs. Attack trees can be used for structured reasoning about the sub-goals of attackers, while attack graphs typically capture the dynamics of an attack surface. As models mature and new applications are explored, GraMSec is taking an increasingly broader view of what constitutes a graphical model in the analysis of systems security. Indeed, taking such a broader view can be regarded as a necessary step in the effort to continually adjust graphical methods to meet the needs of security practitioners and facilitate the transition to practice of research outcomes.

We had the honor to open the workshop with an invited talk by George Cybenko, the Dorothy and Walter Gramm Professor of Engineering at the Dartmouth's Thayer School of Engineering. Prof. Cybenko provided insights into a research direction where control flow graphs, a classical graphical method for program analysis, could be inferred from radio frequency emissions of microprocessors.

Other graphical methods explored in this workshop, beyond attack trees and graphs, included: bow-tie diagrams for modeling causal dependencies surrounding a security risk, and project management enhancements for the EBIOS cyber security methodology. Some papers also considered a graphical subject matter such as social network graphs. However, the mainstay of the research presented remains in the field of attack trees, as is traditional for GraMSec, where papers both extended existing attack tree methodologies and developed compelling case studies.

This year, we received 15 submissions, of which 8 were accepted as regular papers. These proceedings were published after the event, giving authors the opportunity to revise and enhance their manuscripts based on feedback received at the workshop. These proceedings also feature two invited papers from our keynote George Cybenko and from Olga Gadyatskaya and Sjouke Mauw. Papers received an average of 3.5 reviews in a single-blind review process, with each Program Committee member reviewing two papers on average.

We thank the Program Committee members for their timely responses to review requests, and the authors for their sterling contributions. We also extend a special thanks to Barbara Fila and Fabio Persia, who volunteered to chair workshop sessions, thus contributing to the smooth running of the workshop. Finally, we thank Dominic

Duggan, the general chair of CSF 2019, who took the responsibility of coordinating all the logistics for the main conference and co-located workshops. We look forward to future editions of this workshop series.

October 2019

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