

2020 IEEE Secure Development (SecDev 2020)

**Atlanta, Georgia, USA
28 – 30 September 2020**



**IEEE Catalog Number: CFP20H06-POD
ISBN: 978-1-7281-8389-3**

**Copyright © 2020 by the Institute of Electrical and Electronics Engineers, Inc.
All Rights Reserved**

Copyright and Reprint Permissions: Abstracting is permitted with credit to the source. Libraries are permitted to photocopy beyond the limit of U.S. copyright law for private use of patrons those articles in this volume that carry a code at the bottom of the first page, provided the per-copy fee indicated in the code is paid through Copyright Clearance Center, 222 Rosewood Drive, Danvers, MA 01923.

For other copying, reprint or republication permission, write to IEEE Copyrights Manager, IEEE Service Center, 445 Hoes Lane, Piscataway, NJ 08854. All rights reserved.

****** This is a print representation of what appears in the IEEE Digital Library. Some format issues inherent in the e-media version may also appear in this print version.***

IEEE Catalog Number:	CFP20H06-POD
ISBN (Print-On-Demand):	978-1-7281-8389-3
ISBN (Online):	978-1-7281-8388-6

Additional Copies of This Publication Are Available From:

Curran Associates, Inc
57 Morehouse Lane
Red Hook, NY 12571 USA
Phone: (845) 758-0400
Fax: (845) 758-2633
E-mail: curran@proceedings.com
Web: www.proceedings.com

CURRAN ASSOCIATES INC.
proceedings
.com

2020 IEEE Secure Development (SecDev) SecDev 2020

Table of Contents

Message from the General Chairs .viii.....	
Message from the Program Chairs .ix.....	
Organizing Committee .x.....	
Program Committee .xi.....	
Steering Committee .xii.....	
Tutorials .xiii.....	
Keynotes .xiv.....	
Sponsors .xv.....	

Tutorial/Track-1

Tutorial: LLVM for Security Practitioners .1.....	
<i>John Criswell (University of Rochester)</i>	
Tutorial: Detecting Memory Vulnerabilities in the Components of System Code using PROMPT .2....	
<i>Tuba Yavuz (University of Florida) and Ken (Yihang) Bai (University of Florida)</i>	

Tutorial/Track-2

Tutorial: Static Analysis at Scale with Muse .4.....	
<i>Stephen Magill (MuseDev, Inc.) and Thomas DuBuisson (MuseDev, Inc.)</i>	
Tutorial: Principles and Practices of Secure Cryptographic Coding in Java .5.....	
<i>Ya Xiao (Virginia Tech), Miles Frantz (Virginia Tech), Sharmin Afrose (Virginia Tech), Sazzadur Rahaman (Virginia Tech), and Danfeng (Daphne) Yao (Virginia Tech)</i>	

Memory Safety

Fast Execute-Only Memory for Embedded Systems .7.....	
<i>Zhuojia Shen (University of Rochester), Komail Dharsee (University of Rochester), and John Criswell (University of Rochester)</i>	
Refactoring the FreeBSD Kernel with Checked C .15.....	
<i>Junhan Duan (University of Rochester), Yudi Yang (University of Rochester), Jie Zhou (University of Rochester), and John Criswell (University of Rochester)</i>	

Fuzzing Binaries for Memory Safety Errors with QASan .23.....	
	<i>Andrea Fioraldi (Sapienza University of Rome), Daniele Cono D'Elia (Sapienza University of Rome), and Leonardo Querzoni (Sapienza University of Rome)</i>

Security by Practitioners

A Secure Code Review Retrospective .31.....	
	<i>Andrew Buttner (The MITRE Corporation), Richard Piazza (The MITRE Corporation), Rushi Purohit (The MITRE Corporation), and Alec Summers (The MITRE Corporation)</i>
Symbolic Testing for C and Rust .33.....	
	<i>Aaron Tomb (Galois, Inc.), Stuart Pernsteiner (Galois, Inc.), and Mike Dodds (Galois, Inc.)</i>

Deception Systems

Cybersecurity Deception Experimentation System .34.....	
	<i>Jaime C. Acosta (CCDC Army Research Laboratory), Anjon Basak (University of Texas at El Paso), Christopher Kiekintveld (University of Texas at El Paso), Nandi Leslie (CCDC Army Research Laboratory), and Charles Kamhoua (CCDC Army Research Laboratory)</i>
Active Deception Framework: An Extensible Development Environment for Adaptive Cyber Deception .41.....	
	<i>Md Mazharul Islam (University of North Carolina at Charlotte) and Ehab Al-Shaer (Carnegie Mellon University)</i>

Security Practices

Coding Practices and Recommendations of Spring Security for Enterprise Applications .49.....	
	<i>Mazharul Islam (Virginia Tech), Sazzadur Rahaman (Virginia Tech), Na Meng (Virginia Tech), Behnaz Hassanshahi (Oracle Labs), Padmanabhan Krishnan (Oracle Labs), and Danfeng (Daphne) Yao (Virginia Tech)</i>
XI Commandments of Kubernetes Security: A Systematization of Knowledge Related to Kubernetes Security Practices .58.....	
	<i>Md. Shazibul Islam Shamim (Tennessee Tech University), Farzana Ahamed Bhuiyan (Tennessee Tech University), and Akond Rahman (Tennessee Tech University)</i>

Network and Distributed Systems

Analysis of Blockchain Smart Contracts: Techniques and Insights .65.....	
	<i>Shinhae Kim (KAIST) and Sukyoung Ryu (KAIST)</i>
Network Attack Surface Simplification for Red and Blue Teams .74.....	
	<i>Douglas Everson (Clemson University) and Long Cheng (Clemson University)</i>

Automotive and Side-Channel

REMIND: A Framework for the Resilient Design of Automotive Systems .81.....	
<i>Thomas Rosenstatter (Chalmers University of Technology), Kim Strandberg (Chalmers University of Technology), Rodi Jolak (Chalmers, Gothenburg University), Riccardo Scandariato (Chalmers, Gothenburg University), and Tomas Olovsson (Chalmers University of Technology)</i>	
ReViCe: Reusing Victim Cache to Prevent Speculative Cache Leakage .96.....	
<i>Sungkeun Kim (Texas A&M University), Farabi Mahmud (Texas A&M University), Jiayi Huang (Texas A&M University), Pritam Majumder (Texas A&M University), and Neophytos Christou (University of Cyprus)</i>	
Author Index 109.	