Dr. Petar Tsankov

SUMMARY

Petar is a research scientist at the Secure, Reliable, and Intelligent Systems Lab (`https://www.sri.inf.ethz.ch/`) at ETH Zurich and a Chief Scientist / Co-founder of ChainSecurity (`https://chainsecurity.com`). His research centers around security and privacy (blockchain, networks, and system security) and combines techniques from the areas of programming languages, machine learning, and probabilistic programming. As part of his research, Petar has co-developed several system which are widely used in both industry and academia, including SECURIFY (`https://securify.com`), DEGUARD (`https://apk-deguard.com`), AI^2 (`http://ai2.ethz.ch`), SYNET (`https://synet.ethz.ch/`), NETCOMPLETE (`https://netcomplete.ethz.ch/`), and others. He is also a co-founder of ChainSecuirty (`https://chainsecurity.com`), which brings security to blockchain using automated reasoning.

CONTACT INFORMATION

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Address: Dörflistrasse 60, 8050 Zürich, Switzerland

EDUCATION

PhD, Information Security	Jan 2012- Dec 2016
ETH Zurich, Switzerland	GPA 5.83/6.0
Focus: Automated security analysis	

Master of Science, Computer Science	Sep 2010 - Nov 2011
ETH Zurich, Switzerland	GPA 5.76/6.0
Focus: Information security	

Bachelor of Science, Highest honor, Computer Science	Aug 2007 - Dec 2009
Georgia Institute of Technology, Atlanta, USA	GPA 3.9/4.0
Focus: Operating systems and networks	

Georgia Perimeter College, Atlanta, USA	Jan 2006 - May 2007
Major: Computer science	transferred in Aug 2007

Technical University, Sofia, Bulgaria	Aug 2003 - Jun 2005
Faculty of German Engineering	
(affiliated with the Karlsruhe Institute of Technology)	
Major: Computer science	transferred in Jan 2006

RESEARCH PAPERS

NetHide: Secure and Practical Network Topology Obfuscation
Roland Meier, Petar Tsankov, Vincent Lenders, Laurent Vanbever, Martin Vechev
USENIX Security 2018

Inferring Crypto API Rules from Code Changes
Rumen Paletov, Petar Tsankov, Veselin Raychev, Martin Vechev
ACM PLDI 2018

Bayonet: Probabilistic Inference for Networks
Timon Gehr, Sasa Misailovic, Petar Tsankov, Laurent Vanbever, Pascal Wiesmann, Martin Vechev
ACM PLDI 2018

AI^2: Safety and Robustness Certification of Neural Networks with Abstract Interpretation
Timon Gehr, Matthew Mirman, Dana Drachsler-Cohen, Petar Tsankov, Swarat Chaudhuri, Martin Vechev
IEEE Security & Privacy 2018

NetComplete: Practical Network-Wide Configuration Synthesis with Autocompletion
Ahmed El-Hassany, Petar Tsankov, Laurent Vanbever, Martin Vechev
USENIX NSDI 2018

Synthesis of Permissive Privacy Enforcement
Martin Kucera, Petar Tsankov, Timon Gehr, Marco Guarnieri, Martin Vechev
ACM CCS 2017

Network-Wide Configuration Synthesis
Ahmed ElHassany, Petar Tsankov, Laurent Vanbever, Martin Vechev
CAV 2017

Test Execution Checkpointing for Web Applications
Marco Guarnieri, Petar Tsankov, Tristan Buchs, Mohammad Torabi Dashti, David Basin
ACM ISSTA 2017

Access Control with Formal Security Guarantees
Petar Tsankov
PhD Thesis, 2016

Statistical Deobfuscation of Android Applications
Benjamin Bichsel, Veselin Raychev, Petar Tsankov, Martin Vechev
ACM CCS 2016

Functionality-Aware Security Enforcement
Petar Tsankov, Marco Pistoia, Omer Tripp, Martin Vechev, Pietro Ferrara
ACM ACSAC 2016

Access Control Synthesis for Physical Spaces
Petar Tsankov, Mohammad Torabi Dashti, David Basin
IEEE CSF 2016

Fail-Secure Access Control
Petar Tsankov, Srdjan Marinovic, Mohammad Torabi Dashti, David Basin
ACM CCS 2014

Decentralized Composite Access Control
Petar Tsankov, Srdjan Marinovic, Mohammad Torabi Dashti, David Basin
ETAPS POST 2014

Semi-valid Input Coverage for Fuzz testing
Petar Tsankov, Mohammad Torabi Dashti, David Basin
ACM ISSTA 2013

SecFuzz: Fuzz-testing Security Protocols
Petar Tsankov, Mohammad Torabi Dashti, David Basin
IEEE/ACM AST 2012)

Constructing Mid-points for Two party Asynchronous Protocols
Petar Tsankov, Mohammad Torabi Dashti, David Basin
OPODIS 2011

Execution Hijacking: Improving Dynamic Analysis by Flying off Course
Petar Tsankov, Wei Jin, Alessandro Orso, Saurabh Sinha
IEEE ICST 2011

TALKS   ABB Research, Baden, Switzerland   May 2018
              Safety and Robustness Certification of Artificial Intelligence

Blockchain Summit Crypto Valley, Zug, Switzerland | Apr 2018
Technology panel: Already a Next Level of Blockchain?

Crypto Summit, Zurich, Switzerland | Mar 2018
Redefining Smart Contract Audits via Automation

Blockchain Summit Zurich, Zurich, Switzerland | Mar 2018
Redefining Smart Contract Audits

Sofia Crypto Meetup, Sofia, Bulgaria | Jan 2018
Redefining Smart Contract Audits

Blockchain Meetup Liechtenstein, Vaduz, Liechtenstein | Dec 2017
Redefining Smart Contract Audits

Ethereum Zurich Meetup, Zurich, Switzerland | Aug 2017
Securify: Automated Formal Verification of Ethereum Smart Contracts

Artificial Intelligence and Security Workshop, Rennes, France | Apr 2017
Statistical Deobfuscation for Android Applications

Android Security Symposium, Vienna, Austria | Mar 2017
Statistical Deobfuscation for Android Applications

System Lunch Seminar, Zurich, Switzerland | Mar 2017
Network Programmability using Synthesis

ACSAC, Los Angeles, USA | Dec 2016
FASE: Functionality Aware Security Enforcement

CCS, Vienna, Austria | Sep 2016
Statistical Deobfuscation for Android Applications

CSF, Lisbon, Portugal | Jul 2016
Access Control Synthesis for Physical Spaces

CCS, Scottsdale, US | Sep 2014
Fail Secure Access Control

IBM T.J. Watson Research Center, NY, US | Jun, 2014
Next-generation Access Control

POST 2014, Grenoble, France | Apr, 2014
Decentralized Composite Access Control

ZISC Day, Google, Zurich, Switzerland | Sep 17, 2013
Next-generation Access Control Systems

ISSTA 2013, Lugano, Switzerland | Jul 16, 2013
Semi-valid Input Coverage for Fuzz testing

AST 2012, Zürich, Switzerland | Jun 2, 2012
SecFuzz: Fuzz-testing Security Protocols

OPODIS 2011, Toulouse, France | Dec 16, 2011
Constructing Mid-points for Two-party Asynchronous Protocols

ICST 2011, Berlin, Germany | Mar 23, 2011
Execution Hijacking: Improving Dynamic Analysis by Flying off Course

EMPLOYMENT

Chief Scientist   Apr 2018 - present
ChainSecurity
ETH Zurich, Switzerland

Senior Researcher   Apr 2018 - present
Secure, Reliable, and Intelligent Systems Lab
ETH Zurich, Switzerland

Post-Doc   Jan 2017 - Mar 2018
Secure, Reliable, and Intelligent Systems Lab
ETH Zurich, Switzerland

Student assistant   Dec 2010 - Jan 2012
Chair of Systems Design
Researcher   May 2014 - Aug 2014
IBM T.J. Watson Research
Yorktown, NY, USA

Doctoral student   Jan 2012 - Dec 2016
Institute of Information Security
ETH Zurich, Switzerland

Student assistant   Dec 2010 - Jan 2012
Chair of Systems Design
ETH Zurich, Switzerland
- Designed a new graphical interface for Cuttlefish, an open-source network workbench application that visualizes networks (http://cuttlefish.sourceforge.net/)
- Implemented network layout algorithms for visualizations of network data

Student assistant   Jun 2011 - Sep 2011
Institute of Information Security
ETH Zurich, Switzerland
- Worked on the *In depth fuzz testing of security protocol implementations* project (see Research projects)

Software developer   Mar 2010 - Sep 2010
Computer Scientists Corporation, Sofia, Bulgaria

LANGUAGES

English - fluent
German - intermediate (DSH certificate - Jan 2004)
Bulgarian - native

HONORS / AWARDS

Outstanding Undergraduate Researcher Award
- awarded at Georgia Institute of Technology on March 16th 2010
People's choice award
- awarded at the Undergraduate Research Symposium at Georgia Tech in 2009
Best student in Computer Science for 2007
- awarded at Georgia Perimeter College in 2007

REFERENCES

Martin Vechev
Associate Professor
Secure, Reliable, and Intelligent Systems Lab, ETH Zurich
E-mail: martin.vechev@inf.ethz.ch

David Basin
Associate Professor, holds the chair of Information Security
Institute of Information Security, ETH Zurich
E-mail: basin@inf.ethz.ch

Alessandro Orso
Associate Professor
College of Computing, Georgia Institute of Technology
E-mail: orso@cc.gatech.edu