Curriculum vitae

Panagiotis Papadopoulos, Ph.D. Security Researcher Brave Software Inc.

May 14, 2019

PERSONAL INFORMATION

Mailing Address: 9 Appold Str, London EC2A 2AP, UK

Email: panpap@brave.com

Personal Website: http://www.csd.uoc.gr/~panpap/

RESEARCH INTERESTS

Security & Privacy, Ad Transparency, Fraud Detection, Anonymity, Privacy Enhancing Technologies, Internet Measurements.

EDUCATION

Ph.D. in Computer Science

March 2014 - September 2018

University of Crete, Greece

Thesis Topic: The Advertising Ecosystem and its Impact on the User Privacy

Academic Advisor: Prof. Evangelos P. Markatos

M.Sc. in Computer Science

February 2012 - February 2014

University of Crete, Greece

 ${\it Thesis Topic: Anonymous Microblogging Browsing through obfuscation}$

Academic Advisor: Prof. Evangelos P. Markatos

Overall GPA: 9.36/10

B.Sc. in Computer Science

Semptember 2006 - July 2011

University of Crete, Greece

Thesis Topic: Questioning the security of cross-domain components of Web 2.0 Mashups

Academic Advisor: Prof. Evangelos P. Markatos

Overall GPA: 7.12/10

EXPERIENCE

Security Researcher

September 2018 - present

Brave Software Inc.

London, UK

· Manager: Prof. Ben Livshits

· Fields of Research: Networks, Security, Privacy, Transparency and Anonymization.

Assistant Researcher

January 2012 - September 2018

Distributed Computing Systems Lab, (ICS-FORTH)

Heraklion, Crete

· Supervisors: Prof. Evangelos P. Markatos, Dr. Sotiris Ioannidis

- · Participation in several EU-funded projects (Protasis, Tracer, ForToo).
- · Fields of Research: Privacy, Transparency and Anonymization, Network Security.

Research Intern

Queen Mary University of London

London, UK

- · Supervisors: Prof. Hamed Haddadi,
- · Fields of Research: IoT Privacy
- · Summary: I worked in the EPSRC Project Databox on Privacy-Aware Personal Data Platforms with Prof. Hamed Haddadi and Thomas Lodge (University of Nottingham).

Research Intern

October 2016 - February 2017 Barcelona, Spain

Telefonica Research

· Supervisors: Dr. Nicolas Kourtellis,

· Fields of Research: Web Privacy

· Summary: We conduct the first to our knowledge full-scale longitudinal study about Cookie Synchronization in the wild. In particular, we investigate this mechanism, which is used as a workaround for same origin policy along with the privacy leak it causes to the users.

Research Intern

November 2015 - March 2016 Barcelona, Spain

Telefonica Research

· Supervisors: Dr. Nikolaos Laoutaris, Dr. Nicolas Kourtellis

- · Fields of Research: Web Advertising & Privacy
- · Summary: We measure the monetary cost the advertisers pay for the user's private data. By tapping on programmatic auctions and RTB protocol, we train a model, that uses as input the private data the user leaks, to extract the per-impression cost paid at real-time, either when the price is encrypted or not.

Teaching Activities

Spring 2012 - Sprint 2018

Computer Science Department, University of Crete, Greece

Heraklion, Crete

- · Teaching Assistance in several courses:
 - Introduction to Information Security Systems (CS457) Spring 2018 Prof. E. Markatos, University of Crete
 - Game Theory (CS693) Spring 2017 Prof. A. Traganitis, University of Crete
 - Internet Systems and Technologies (CS558) Spring 2015 Prof. E. Markatos, University of Crete
 - Network Measurements (CS459) Spring 2014 Prof. E. Markatos, University of Crete
 - Operating Systems (CS345) Fall 2013, 2014, 2015 Prof. E. Markatos, University of Crete
 - Laboratory in Software Engineering (CS255) Spring 2013 Prof. A. Bilas, University of Crete
 - Data Structures (CS240) Fall 2012 Prof. P. Fatourou, University of Crete
 - Web Programming (CS359) Spring 2012 Prof. Y. Tzitzikas, University of Crete

Assistant Researcher

January 2012 - January 2014

Distributed Computing Systems Lab, (ICS-FORTH)

Heraklion, Crete

- · Supervisors: Prof. Evangelos P. Markatos, Dr. Sotiris Ioannidis
- · Participation in the EU-funded project SysSec.
- · Fields of Research: Network Privacy and Anonymization

Undergraduate Trainee

September 2011 - December 2011 Heraklion, Crete

Distributed Computing Systems Lab, (ICS-FORTH)

- · Supervisor: Prof. Evangelos P. Markatos
- · Participation in the EU-funded project i-Code (Real-time Malicious Code Identification)
- · Fields of Research: Web Privacy

PEER-REVIEWED PUBLICATIONS

- · Panagiotis Papadopoulos, Antonis Papadogiannakis, Michalis Polychronakis, Evangelos P. Markatos, Is Privacy possible without Anonymity? The case for microblogging services, Proceedings of the 12th European Workshop on Systems Security (EuroSec'19), March 2019, Dresden, Germany.
- Panagiotis Papadopoulos, Nicolas Kourtellis, Evangelos P. Markatos. Cookie Synchronization: Everything You Always Wanted to Know But Were Afraid to Ask, In proceedings of the 28th International World Wide Web Conference (WWW'19), April 2019, San Francisco, California, USA.
- · Panagiotis Papadopoulos, Panagiotis Ilia, Michalis Polychronakis, Evangelos P. Markatos, Sotiris Ioannidis, Giorgos Vasiliadis. Master of Web Puppets: Abusing Web Browsers for Persistent and Stealthy Computation, In proceedings of the 26th Network and Distributed System Security Symposium (NDSS 2019), February 2019, San Diego, California, USA.
- · Panagiotis Papadopoulos, Antonios A. Chariton, Elias Athanasopoulos, Evangelos P. Markatos. Where's Wally? How to Privately Discover your Friends on the Internet, In proceedings of the 13th ACM Asia Conference on Computer and Communications Security (AsiaCCS'18), June 2018, Songdo, Incheon, South Korea.
- · Panagiotis Papadopoulos, Nicolas Kourtellis, Evangelos P. Markatos. **Exclusive: How the** (synced) Cookie Monster breached my encrypted VPN session, In proceedings of the 11th European Workshop on Systems Security (EuroSec'18), April 2018, Porto, Portugal.
- · Giannis Tzagarakis, Panagiotis Papadopoulos, Antonios A. Chariton, Elias Athanasopoulos, Evangelos P. Markatos. **Opass: Zero-storage Password Management Based on Password Reminders**, In proceedings of the 11th European Workshop on Systems Security (EuroSec'18), April 2018, Porto, Portugal.
- · Panagiotis Papadopoulos, Nicolas Kourtellis, Evangelos P. Markatos. **The Cost of Digital Advertisements: Comparing User and Advertiser Views**, In proceedings of the 27th International World Wide Web Conference (WWW'18), April 2018, Lyon, France.
- · Panagiotis Papadopoulos, Nicolas Kourtellis, Pablo Rodriguez Rodriguez, Nikolaos Laoutaris. If you are not paying for it, you are the product: How much do advertisers pay to reach you?, In proceedings of the 17th Internet Measurement Conference (IMC'17), 2017, London, UK.
- · Panagiotis Papadopoulos, Giorgos Christou, Giorgos Vasiliadis, Evangelos P. Markatos, Sotiris Ioannidis. No sugar but all the taste! Memory Encryption without Architectural Support, In proceedings of the 22nd European Symposium on Research in Computer Security (ESORICS'17), 2017, Oslo, Norway.

- · Elias Papadopoulos, Michalis Diamantaris, Panagiotis Papadopoulos, Thanasis Petsas, Sotiris Ioannidis and Evangelos P. Markatos. **The Long-Standing Privacy Debate: Mobile Websites Vs Mobile Apps**, In proceedings of the 26th International World Wide Web Conference (WWW'17), 2017, Perth, Australia. (Best Paper Honorable Mention)
- · Antonios Chariton, Eirini Degkleri, Panagiotis Papadopoulos, Panagiotis Ilia, Evangelos P. Markatos. CCSP: a Compressed Certificate Status Protocol, In proceedings of IEEE International Conference on Computer Communications (INFOCOM'17), Atlanta, Georgia, USA.
- · Panagiotis Papadopoulos, Elias Athanasopoulos, Eleni Kosta, George Siganos, Angelos D. Keromytis and Evangelos P. Markatos. **Provable Network Activity for Protecting Users against False Accusation**, In proceedings of the 10th International Conference on Information Security Theory and Practice (WISTP'16).
- · Antonios Chariton, Eirini Degkleri, Panagiotis Papadopoulos, Panagiotis Ilia, Evangelos P. Markatos. DCSP: Performant Certificate Revocation a DNS-based approach, In proceedings of the 9th European Workshop on System Security (EuroSec'16). April 2016, London, UK.
- Panagiotis Papadopoulos, Giorgos Christou, Thanasis Petsas and Giorgos Vasiliadis. MAD: A Middleware Framework for Multi-Step Attack Detection. In proceedings of the 4th IEEE International Workshop on Building Analysis Datasets and Gathering Experience Returns for Security (BADGERS). November 2015, co-located with the 18th International Symposium on Research in Attacks, Intrusions and Defenses (RAID), Kyoto, Japan.
- · Kostantinos Stroggylos, Dimitris Mitropoulos, Zacharias Tzermias, Panagiotis Papadopoulos, Fotios Rafailidis, Diomidis Spinellis, Sotiris Ioannidis, Panagiotis Katsaros. Securing legacy code with the TRACER platform. In Proceedings of 18th Panhellenic Conference on Informatics (PCI 2014), Athens, Greece.
- · Dimitris Mitropoulos, Georgios Gousios, Panagiotis Papadopoulos, Vassilios Karakoidas, Panos Louridas and Diomidis Spinellis. **The Vulnerability Dataset of a Large Software Ecosystem.** In proceedings of the 3rd IEEE International Workshop on Building Analysis Datasets and Gathering Experience Returns for Security (BADGERS). September 2014, co-located with the 19th European Symposium on Research in Computer Security (ESORICS), Wroclaw, Poland.
- · Panagiotis Garefalakis, Panagiotis Papadopoulos and Kostas Magoutis **ACaZoo: A Distributed Key-Value Store based on Replicated LSM-Trees.** In Proceedings of 33rd IEEE Symposium on Reliable Distributed Systems (SRDS). October 2014, Nara, Japan. (Best Student Paper Award)
- · Panagiotis Garefalakis, Panagiotis Papadopoulos, Ioannis Manousakis and Kostas Magoutis **Strengthening Consistency in the Cassandra Distributed Key-Value Store** 13th International IFIP Conference on Distributed Applications and Interoperable Systems (DAIS). June 2013, Florence, Italy.
- Panagiotis Papadopoulos, Antonis Papadogiannakis, Michalis Polychronakis, Apostolis Zarras, Thorsten Holz, Evangelos P. Markatos. **k-subscription: Privacy-preserving Microblogging Browsing through Obfuscation.** In Proceedings of the 2013 Annual Computer Security Applications Conference (ACSAC). December 2013, New Orleans, Louisiana, USA.

TECHNICAL REPORTS

- · Panagiotis Papadopoulos, Zacharias Tzermias, Sotiris Ioannidis, Vassilis Prevelakis, **Privacy Risks** from Public Data Sources.
- · Panagiotis Papadopoulos, Michalis Pachilakis, Antonios Chariton, Evangelos P. Markatos, OUT-OPIA: Privacy-Preserving User Discovery on the Internet.
- Michalis Pachilakis, Antonios Chariton, Panagiotis Papadopoulos, Panagiotis Ilia, Eirini Degkleri, Evangelos P. Markatos, Design and Implementation of a Compressed Certificate Status Protocol.
- · Panagiotis Papadopoulos, Panagiotis Ilia, Evangelos P. Markatos, **Truth in Web Mining: Measuring the Profitability and Cost of Cryptominers as a Web Monetization Model**.
- · Pushkal Agarwal, Sagar Joglekar, Panagiotis Papadopoulos, Nisanth Sastry, Nicolas KourtellisBiases in Online User Tracking on Hyper-Partisan Websites.
- · Michalis Pachilakis, Panagiotis Papadopoulos, Evangelos P. Markatos, Nicolas Kourtellis, No More Chasing Waterfalls: A Measurement Study of the Header Bidding Ad-Ecosystem.
- · Panagiotis Papadopoulos, Peter Snyder, Benjamin Livshits, Another Brick on the Paywall: The Popularity and Privacy Implications of Paywalls.
- · Jordan Jueckstock, Shaown Sarker, Peter Snyder, Matteo Varvello, Benjamin Livshits, Alexandros Kapravelos, The Blind Men and the Internet: Generalizing Web Measurement Results across Vantage Points.

PEER-REVIEWED POSTERS

Alexandros Kornilakis, Panagiotis Papadopoulos, Evangelos P. Markatos. CHECK-IT: Real Time Detection of Fake News, 14th International Conference on emerging Networking Experiments and Technologies, (CoNEXT'18) Heraklion, Greece

Michail Pachilakis, Panagiotis Papadopoulos, Nicolas Kourtellis and Evangelos Markatos (FORTH), YourAdValue: How Much Your Data worth to Online Advertisers, Cybersecurity and Privacy (CySeP'18) Summer School, Stockholm, Sweden 2018.

Panagiotis Papadopoulos, Nicolas Kourtellis and Evangelos Markatos **Breaking Secure Web Sessions with synced Cookies**, Cybersecurity and Privacy (CySeP'18) Summer School, Stockholm, Sweden 2018.

Panagiotis Papadopoulos, Nicolas Kourtellis, Evangelos P. Markatos. Syncing the Cookie Monster: A Longitudinal Study of Cookie Syncing and its Impact on User Privacy., Cybersecurity and Privacy (CySeP'17) Summer School, Stockholm, Sweden 2017.

Eirini Degkleri, Antonios A. Chariton, Panagiotis Ilia, Panagiotis Papadopoulos, Evangelos P. Markatos, Leveraging DNS for timely SSL Certificate Revocation, ACM Europe womENcourage, Linz, Austria, 2016.

Kostantinos Stroggylos, Dimitris Mitropoulos, Zacharias Tzermias, Panagiotis Papadopoulos, Fotios Rafailidis, Diomidis Spinellis, Sotiris Ioannidis, Panagiotis Katsaros, **TRACER: A Platform for Securing Legacy Code**, 7th International Conference on Trust & Trustworthy Computing, (TRUST'14) Herakion, Greece, 2014.

Panagiotis Garefalakis, Panagiotis Papadopoulos and Kostas Magoutis. Strengthening Consistency in the Cassandra Distributed Key-Value Store. 9th Advanced Computer Architecture and Compilation for High-Performance and Embedded Systems (ACACES'13), Fiuggi, Italy, 2013.

Doctoral Fellowship

June 2018

Committee of Computer Science Department, University of Crete

The University of Crete awards every year 20 honorary "Maria Michail Manasaki" Bequest Fellowships: 10 fellowships are awarded to the Faculty of Medicine and 10 to the Faculty of Sciences and Engineering. Fellowships consist of a 6,000.00 Euro award. The Department of Computer Science awards with its Manasaki Fellowships one exceptional Ph.D. candidate at the end of each academic year.

Doctoral Scholarship

May 2017

Committee of ELIDEK 2017

· Honored to receive 1 of the 125 scholarships (2nd best grade in University of Crete) of the 1st Hellenic Foundation for Research and Innovation (ELIDEK) Scholarships for Doctoral Candidates in Computer Science and Engineering in Greece. The selection was made based on the scientific background and the ability of the candidates to implement the research work undertaken as part of their thesis. Each proposal was reviewed by two independent experts and the final evaluation and ranking of the proposals made by special committees comprised of distinguished scientists in the particular scientific area.

Best Paper Honorable Mention

April 2017

Committee of WWW 2017

· Best Paper Honorable Mention evaluated by the Best Paper Honorable Mention Committee of the 26th International World Wide Web Conference (WWW 2017): David Carmel (Yahoo Research; committee chair), Qiaozhu Mei (University of Michigan), Jian Pei (Simon Fraser University), and Elad Yom-Tov (Microsoft Research).

Best Student Paper Award

October 2014

Committee of SRDS 2014

· Best Student Paper Award evaluated by the Best Paper Award Co-Chairs of the 33rd IEEE International Symposium on Reliable Distributed Systems (SRDS 2014).

Selected for Participation in HLF'18

September 2018

Scientific Committee of Heidelberg Laureate Forum Foundation

· Honored to be selected as 1 of the 200 Young researchers that will participate in the 6th Heidelberg Laureate Forum (HLF'18), Heidelberg Germany.

Travel Grant January 2019

NDSS Travel Grant review Committee

· Recipient of Student Travel grant to attend the 26th annual Network and Distributed System Security (NDSS) Symposium in San Diego, California.

Travel Grant September 2018

The Bioinformatics and Human Electrophysiology Lab (BiHELab)

· Selected as the only Greece-based Young Researcher to receive BiHELab Grant for participating in the 6th Heidelberg Laureate Forum (HLF'18).

Student Conferenceship Award

April 2016

EuroSys Committee

· Travel grant to attend EuroSys conference 2016 held in London, UK

Student Conferenceship Award

November 2014

IMC Committee

· Travel grant to attend Internet Measurement Conference (IMC 2014) held in Vancouver, BC, Canada

Student Conferenceship Award

December 2013

ACSAC Committee

· Student Conferenceship Award for the Annual Computer Security Applications Conference (AC-SAC 2013) held in New Orleans, Louisiana, USA

Distinguished position in Teaching Assistance

February 2013 - July 2013

· Honored to receive one of the five distinct positions in teaching assistance during the spring semester of 2013. The selection was made from the University of Crete in accordance to the ranking of the candidates based on the GPA during their postgraduate studies.

Undergraduate Scholarship

September 2011 - December 2011

· Scholarship by the Foundation for Research and Technology - Hellas (FORTH)

INVITED TALKS

European Union Satellite Centre (SatCen)

2018

 \cdot The Next Generation Threats and Cyber Security Challenges.

PROTASIS Marie Sklodowska-Curie IoT Workshop

2017

· Syncing the cookie monster: A longitudinal study of cookie syncing and its impact on user privacy. http://www.dagstuhl.de/17143

Athens Cassandra Meetup

2015

 Cassandra Consistency - Trade-offs and Limitations http://www.meetup.com/Athens-Cassandra-Users/events/220922960/

CO-SUPERVISED STUDENTS

- 1 Alexandros Kornilakis: "Incognito Mode for Privacy-Preserving Browsing in Online Social Networks" Graduate Trainee at FORTH-ICS.
- 2 Alexander Shevchov: "How hard do you browse? Investigating new fingerprinting techniques based on the hardware characteristics of the user's device." MSc Student in University of Crete.
- 3 Evangelos Dimitriadis: "Retrospective study of the evolution of user tracking in the web" MSc Student in University of Crete.
- 4 Eirini Aikaterini Degkleri: "A Large-Scale Analysis of the SSL Certificates in Certificate Transparency." MSc Student in University of Crete.
- 5 Manolis Karampinakis: "Investigative study of the growing technology of blockchain" MSc Student in University of Crete.

- 6 Michalis Pachilakis: "Design and Implementation of a Compressed Certificate Status Protocol" MSc Student in University of Crete.
- 6 Ilias P. Papadopoulos: "The Long-Standing Privacy Debate: Mobile Websites Vs Mobile Apps" MSc Student in University of Crete.
- 7 Apostolos Karabelas: "Secure Attestation of Human Interactions on the Web" Graduate Trainee at FORTH-ICS.

EXTERNAL SERVICE

Publicity Chair 2016

· 11th International Workshop on Security and Trust Management (STM 2016)

Session Chair 2016

- · 21th European Symposium on Research in Computer Security (ESORICS 2016)
- · 11th International Workshop on Security and Trust Management (STM 2016)

Paper Reviewer

· WWW (2019), IEEE Access (2018), ACSAC (2018), IEEE/ACM Transactions on Networking (2017), ACNS (2016), STM (2016), RAID (2015), IMC (2015), ESORICS (2015), DIMVA (2015), International Journal of Information Security (2015, 2016), IET Information Security (2014, 2018), DBSec (2015)

PARTICIPATION IN EU-FUNDED PROJECTS

PROTASIS - Marie Skłodowska-Curie Actions

2016

· PROTASIS aims to expand the reach of SysSec to the international community via a joint research program in the area of Systems Security spearheaded by the need to develop a computing infrastructure that will be trusted by the citizens and the organizations they use it. Through a novel international and intersectoral program the participants will advance the state-of-the art in the area of security and privacy and will sharpen their skills using the most advanced methods for cyberattacks and malware. http://www.protasis.eu/

FORTOO - Horizon 2020

2014

· The project aims to develop digital forensics tools that will: (i) identify, (ii) analyze and (iii) visualize illegal activities on the Internet. The objectives of this project are: (i) to design and prototype a toolkit that will detect illegal activities both proactively and after-the-fact, (ii) to identify the source and perpetrators of the illegal activities, both in terms of virtual/network and, as much as possible, physical location, (iii) to profile the expertise and motive of the attackers, (iv) to present the relevant information in a way that will be usable by investigating authorities, and (v) to maximize the impact of the project through aggressive and effective dissemination of the project's results. http://www.fortoo.eu/

TRACER 2014

· Legacy systems are likely to contain software vulnerabilities that can lead to various security breaches. On the other hand, these systems contain valuable information about the environment, the creation and the evolution of the organization they support. For this reason, redesigning large systems in order to be secure and compatible with new technologies is not a practical option, since the information mentioned above could be lost. In addition the cost of replacing such system and

retrain its various users, could be prohibitive. In this project we propose a framework that shields legacy systems based on two basic steps: First, our framework analyzes the source code of the system to identify potential software vulnerabilities and eliminates them. Then, depending on the previous analysis the framework proposes solutions to protect the system from the most common web-application attacks. http://tracer.dmst.aueb.gr/

ATTENDED SUMMER SCHOOLS

3rd Cybersecurity and Privacy (CySeP) Summer School KTH University Stockholm

June 2017

· In spite all the progress made, how close are we to feeling safe in cyberspace? How well do we do in addressing real-world security and privacy (S&P) problems? Or, to put it slightly differently, how could we best address them? Given the extensive S&P research and teaching endeavors, do we deploy our best S&P solutions in systems we roll out and rely upon? What are the obstacles? How to further improve education and professional training in this area? Do we reach out to non-experts to make their lives easier when it comes to adopting S&P measures? How to stimulate and integrate customer experiences? These are questions that motivate this Cyber Security and Privacy (CySeP) Summer School.

2nd SysSec Summer School, Mobile Malware (Theory and Practice) September 2014 VU University Amsterdam

• The 2014 SysSec Summer School took a hands-on approach to teach reverse-engineering and analysis of mobile malware. The goal of the school was to be "theory-light and practice-heavy". There were practical exercises to go through, and the lecturer showed code examples at the blackboard and did a step by step analysis. Students worked on performing their own analysis and they wrote their own malware in order to understand the intricacies involved.

TransForm School on Research Directions in Distributed Computing June 2013 Foundation for Research and Technology - Hellas (FORTH)

· The school included a series of talks by renowned researchers covering hot topics on current research in the general area of distributed computing with emphasis on multi-core computing, synchronization protocols, and transactional memory. Additionally, it provided discussion sections on future research directions in the field. The school hosted a number of external researchers from several different disciplines (hardware, systems, software, theory, applications, etc.) The school aimed at the dissemination of advanced scientific knowledge on the field and the promotion of international contacts among scientists from academia and industry.

TECHNICAL SKILLS

Operating systems Linux, OSX

Programming Languages Java, C, NodeJS, Python, Ruby, Bash, JavaScript

Version control Subversion, Git

Other LATEX, SQL, R, MATLAB

LANGUAGES

Greek (Native speaker), English (Fluent), German (Beginner)

REFERENCES

- Prof. Evangelos Markatos, University of Crete, Greece (markatos@ics.forth.gr)
- Dr. Sotiris Ioannidis, ICS-FORTH, Greece (sotiris@ics.forth.gr)
- Dr. Nicolas Kourtellis, Telefonica I+D, Barcelona, Spain(nicolas.kourtellis@telefonica.com)
- Dr. Nikolaos Laoutaris, IMDEA & Data Transparency Lab, Madrid, Spain(nikos@datatransparencylab.org)
- Dr. Ilias Leontiadis, Samsung AI Center, Cambridge, UK(iliasl@gmail.com)
- Assistant Prof. Michalis Polychronakis, Stony Brook University, New York, USA (mikepo@cs.stonybrook.edu)
- Dr. Antonis Papadogiannakis, ProtectWise, Colorado, USA (papadog@protectwise.com)
- Dr. Giorgos Vasiliadis, ICS-FORTH, Greece (gvasil@ics.forth.gr)