VasiliosMavroudis

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Research Interests

Security Flaws & Countermeasures, AI Safety & Adversarial Machine Learning, Consensus Protocols & Market Microstructure

Education

2016 — Present **PhD in Computer Science** University College London, UK
Thesis: "Privacy Preserving Statistics & Analytics"
Supervisors: Prof. George Danezis & Prof. Emiliano De Cristofaro

2014 — 2015 **M.Sc. in Information Security** University College London, UK
Thesis: "Privacy-preserving Statistics for Tor"
Supervisor: Prof. George Danezis

2007 — 2012 **B.Sc. in Applied Informatics** University of Macedonia, Greece
Thesis: "Cassiopeia: Real-time mobile security monitoring system"
Supervisor: Prof. Mavridis Ioannis

Experience

May 2018 — Aug 2018 **Systems Security Group, Swiss Federal Institute of Technology - ETH, Zurich** Zurich, Switzerland
Visiting Researcher
Designed and prototyped a novel and secure system for low-latency cryptocurrency payments. Currently working on the academic paper.

Sep 2015 — Feb 2016 **Computer Security Group, University of California, Santa Barbara** California, USA
Research Assistant
Comprehensive study of ultrasound tracking, that received wide-spread attention and is considered the seminal work on the security of that ecosystem.

July 2014 — Sep 2014 **Computer Security Group, University of California, Santa Barbara** California, USA
Research Assistant
Design and development of a prototype that analyses JavaScript malware samples and detects those that exhibit non-deterministic behavior in order to evade detection.

May 2013 — May 2014 **Centre for Research & Technology Hellas** Thessaloniki, Greece
Research Assistant
Research on security technologies for seamless service provisioning in smart mobile ecosystems. I studied large-scale attacks against telecommunication networks and developed detection algorithms and prevention measures (NEMESYS FP7).

Mar 2012 — Aug 2012 **Deutsche Bank, GT Security/Security Information Solutions dept.** Frankfurt, Germany
Research Internship
Deployed a proof-of-concept system based on the Intel IPT technology that enhances the security level of web banking transactions by utilizing user interaction, secure channels and secure displays. Moreover, I developed auditing tools for the bank's Public Key Infrastructure.

Technologies

Proficient: Python, TensorFlow, Keras, Solidity, JavaCard. *Prior Experience*: C++, Java.

Honors, Awards, & Grants

Award Finalist CSAW Europe 2018 Applied Research Award (Oct 2018); **Honor** Heidelberg Laureate Forum's 10-out-of-200 young researchers list (Sep 2018); **Project Grant** UCL Public Engagement Unit funding for the development of "Cryptogame" (Jul 2018); **Werner Romberg Grant** by the Heidelberg Laureate Forum (Sep 2018); **Travel Grant** RISE School 2018, BlackHat US 2017, Google Summit 2016; **Grant** Data Transparency Lab engagement funding (Nov 2016); **Award** Dean's List commendee at UCL for outstanding academic performance (Apr 2016); **Honor** Distinction in Information Security M.Sc, and ranked 1st in class (Nov 2015); **Award** First place at UCL code breaking competition (May 2015); **Scholarship** UCL Excellence Scholarship for MSc candidates (Aug 2014); **Scholarship** Arnaoutis Foundation excellence scholarship for postgraduate studies (Sep 2014); **Honor** 'Excellent GPA', University of Macedonia (Sep 2012); **Scholarship** Erasmus European program for internships (Mar 2012); **Scholarship** Security in IT Course, Danmarks Tekniske Universitet (Aug 2011); **Honor** "Degree of excellence", Ministry of National Education, Greece (2001 – 2007)

Publications

[C = Conference] [T=Technical Report] [P=Preprint]

Snappy: Near-Instant On-Chain Payments Guaranteed by Collaterals.
Mavroudis V., Wuest K., Dhar A., Kostiainen K., Capkun S.
Under Submission at IEEE Symposium on Security and Privacy 2019, Dec 2018

[P] Towards Low-level Cryptographic Primitives for JavaCards.
Mavroudis V., Svenda P.
https://arxiv.org/abs/1810.01662, Oct 2018

[P] VAMS: Verifiable Auditing of Access to Confidential Data
Hicks A., **Mavroudis V.**, Al-Bassam M., Meiklejohn S., and Murdoch S.
https://arxiv.org/abs/1805.04772, May 2018

[C] Eavesdropping Whilst You're Shopping: Balancing Personalisation and Privacy in Connected Retail Spaces[1]
Mavroudis V., Veale M.
PETRAS/IoTUK/IET Living in the IoT Conference, 2018, January 2018

[C] A Touch of Evil: High-Assurance Cryptographic Hardware from Untrusted Components
Mavroudis V., Cerulli A., Cvrcek D., Svenda P., Klinec D., Danezis G.
24th ACM Conference on Computer and Communications Security, Dallas, TX, November 2017
CSAW Europe 2018 Applied Research Award Finalist

[C] On the Privacy and Security of the Ultrasound Tracking Ecosystem
Mavroudis V., Hao S., Fratantonio Y., Maggi F., Kruegel C., Vigna G.
Proceedings of the Privacy Enhancing Technologies Symposium Minneapolis, MN July 2017

[T] Anomaly detection within femtocell architectures
Liebergeld St., Lange M., Borgaonkar R., Drosou An., **Mavroudis V.**
Enhanced Network Security for Seamless Service Provisioning in the Smart Mobile Ecosystem, EU FP7, November 2104

[C] Visual Analytics for enhancing supervised attack attribution in mobile networks
Papadopoulos S., **Mavroudis V.**, Drosou A.., Tzovaras D.
29th International Symposium on Computer and Information Sciences (ISCIS), Krakow, Poland, October 2014

[T] Anomaly detection based on real-time exploitation of billing systems
Abdelrahman O., Drosou An., Gelenbe E., Gorbil G., **Mavroudis V.**
Enhanced Network Security for Seamless Service Provisioning in the Smart Mobile Ecosystem, EU FP7, October 2014

[T] Correlation Analysis and Abnormal Event Detection Module
Abdelrahman O., **Mavroudis V.**, Papadopoulos S., Drosou An., Oklander B.
Enhanced Network Security for Seamless Service Provisioning in the Smart Mobile Ecosystem, EU FP7, April 2014

[T] Network information sources
Tzovaras D., **Mavroudis V.**, Papadopoulos G., Bekoulis G., Baltatu M., Delosičres L.
Enhanced Network Security for Seamless Service Provisioning in the Smart Mobile Ecosystem, EU FP7, July 2013

[1] Equal Author Contribution

Selected Talks

The Good, the Bad and the Ugly of the Ultrasonic Communications Ecosystem.
RSA Conference 2018, San Francisco, US, 16-20 April 2018.

Trojan-tolerant Hardware & Supply Chain Security in Practice.
Defcon 25, Las Vegas, US, 27-30 July 2017.

OpenCrypto: Unchaining the JavaCard Ecosystem.
Blackhat US, Las Vegas, US, 22-27 July 2017.

On the Privacy & Security of the Ultrasound Tracking Ecosystem.
Mozilla International Privacy Day, London, UK, 28 January 2017.

Tough Love for the ugly Ultrasound Tracking Ecosystem.
Chaos Communication Congress, Hamburg, Germany, 27-30 December 2016.

Talking Behind Your Back: Attacks and Countermeasures of Ultrasonic Cross-device Tracking.
Blackhat Europe, London, UK, 3-4 November 2016.

Academic Service

Publications co-Chair: Privacy Enhancing Technologies Symposium 2019
August 2018 - Present

Guest Lecture: Masterclass on Maths and Cryptography at the Royal Institute of Sciences
January 2018

Co-organizing the Hacking Seminars at UCL
September 2017-May 2018

Organizing the Information Security Seminars at UCL
January 2017-August 2018

External Reviewer for Privacy Enhancing Technologies Symposium
April 2017-Present

Elected IT Officer in the Members' Council of Goodenough College, London
November 2016 - Present

Teaching Assistant *Computer Security I* module, Information Security MSc
Winter term, 2017-2018

Teaching Assistant for *Computer Security II* module, Information Security MSc
Spring term, 2016-2017

Guest Lecture on Academic Research, In2ScienceUK Organization
August 2017

External Reviewer: Journal of Multi-Criteria Decision Analysis, Wiley
2014-2015

Internal Reviewer for deliverables of the NEMESYS FP7 project
May 2013 - Jun 2014