

# Vasilios Mavroudis

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## Research Interests

Secure Systems Design, Privacy-preserving & Robust Machine Learning, Distributed Systems & Electronic Exchanges

## Education

2016 – Present	<b>PhD in Computer Science</b> Supervisors: Prof. George Danezis & Prof. Emiliano De Cristofaro <i>Oasis Labs &amp; Binance Research Fellowships, Werner Romberg &amp; Ferguson Grants, Top 10 young researchers at HLF, CSAW 2018 Finalist</i>	University College London, UK
2014 – 2015	<b>M.Sc. in Information Security</b> (88/100 Distinction) Thesis: "Privacy-preserving Statistics for Tor" <i>UCL Dean's List Award, UCL Excellence Scholarship, 1st at the UCL code breaking competition, Ranked 1st in MSc cohort</i>	University College London, UK
2007 – 2012	<b>B.Sc. in Applied Informatics</b> (8.51/10 Distinction) Thesis: "Cassiopeia: Real-time mobile security monitoring system" <i>Excellence Award, Top 3%</i>	University of Macedonia, Greece

## Experience

May 2018 – Aug 2018	<b>Systems Security Group, Swiss Federal Institute of Technology - ETH, Zurich</b> <i>Visiting Researcher</i> Designed and prototyped a decentralized and provably secure system for low-latency onchain cryptocurrency payments.	Zurich, Switzerland
Sep 2015 – Feb 2016	<b>Computer Security Group, University of California, Santa Barbara</b> <i>Research Assistant</i> Comprehensive study of the security and privacy implications of ultrasound tracking. This work has been published at Privacy-enhancing Technologies Symposium 2017 and received wide-spread attention. It is considered the seminal work on the security of that ecosystem.	California, USA
July 2014 – Sep 2014	<b>Computer Security Group, University of California, Santa Barbara</b> <i>Research Assistant</i> Designed and developed a prototype that analyses JavaScript malware samples and detects samples that exhibit non-deterministic behavior in order to evade detection.	California, USA
May 2013 – May 2014	<b>Centre for Research &amp; Technology Hellas</b> <i>Research Assistant</i> 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 attack mitigation countermeasures.	Thessaloniki, Greece
Mar 2012 – Aug 2012	<b>Deutsche Bank, GT Security/Security Information Solutions dept.</b> <i>Research Internship</i> Deployed a proof-of-concept system that prevented malware from altering the contents of the Deutsche Bank's webbanking webpage by rendering sensitive parts of the page in a secure compartment of the CPU (Intel IPT). Additionally, I developed auditing tools for the bank's Public Key infrastructure.	Frankfurt, Germany

## Technologies

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

## Honors, Awards, Certs & Grants

**Research Fellowship** by Oasis Labs (Sep 2019-Sep 2020); **Research Grant** by Binance Labs on market manipulation in electronic exchanges (Jun 2019-Present); **Cert** Coursera Deep Learning Specialization (January 2019); **Research Grant** from the Allan & Nesta Ferguson Charitable Trust (Nov 2018); **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 cohort (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);

## Selected Publications

[C = Conference] [P=Preprint] [U=Under Submission]

**[C] Location, location, location: Revisiting modeling and exploitation for location-based side channel leakages.**

Andrikos C., Batina L., Chmielewski L., Lerman L., **Mavroudis V.**, Papagiannopoulos K., Perin G., Rassias G., Sonnino A.  
25th Annual International Conference on the Theory and Application of Cryptology and Information Security (Asiacrypt) 2019

**[C] Fair Order-Matching for Electronic Financial Exchanges**

**Mavroudis V.**, Melton H.

ACM conference on Advances in Financial Technologies (AFT) 2019

**[C] Market Manipulation as a Security Problem: The case of decentralized exchanges**

**Mavroudis V.**

Proceedings of the 26th International Workshop on Security Protocols, April 2019

**[C] Market Manipulation as a Security Problem: Attacks and Defenses**

**Mavroudis V.**

Proceedings of the 12th European Workshop on Systems Security (EuroSec), March 2019

**[U] Snappy: Fast Blockchain Payments.**

**Mavroudis V.**, Wuest K., Dhar A., Kostianen K., Capkun S.

Under Submission

**[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**

**Mavroudis V.**, Veale M. (Equal Contribution)

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

## 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

**Mentoring: Supervised several MSc theses for the Information Security MSc program at UCL**  
August 2017 - Present

**External Reviewer for the Privacy Enhancing Technologies Symposium**  
April 2017-Present

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

**Guest Lecturer: Masterclasses on Maths and Cryptography at the Royal Institution**  
January 2018-Present

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

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

**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