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Dimitrios (Dimitris) Mouris

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Computer Security researcher motivated by the impact of cybersecurity in contemporary society and in humanity.

Research & Work Experience

University of Delaware — *Newark, DE, USA*

Research Assistant — *February 2019 – Now*

Applied cryptography • Computer security • Private computation • Zero-knowledge proofs • Homomorphic Encryption

Amazon Web Services (AWS) — *Palo Alto, CA, USA*

Software Development Engineer (SDE) Intern — *June 2021 - August. 2021*

Role-Based Access Control (RBAC) for Amazon Redshift. RBAC manages database access permissions and authorizes users with different security attributes and privileges. By applying security attributes to users, RBAC can divide up superuser capabilities among several administrators. With RBAC, the customers can determine who can perform what operations in Amazon Redshift and can easily manage security privileges.

Athena Research & Innovation Center — *Athens, Greece*

Research Assistant & Software Engineer — *September 2017 – December 2018*

- *My Health My Data (MHMD)* project: Developed an end-to-end framework enabling privacy-preserving medical data analytics (e.g., privacy-preserving histograms and decision trees) using secure multi-party computation (MPC).
- The framework was developed using Python, NodeJS, JavaScript & HTML, while the privacy-preserving algorithms were developed using the Sharemind MPC framework. *smpc-analytics*

Education

Department of Electrical & Computer Engineering, University of Delaware — *Newark, DE, USA*

Doctor of Philosophy (PhD) in Electrical and Computer Engineering — *February 2019 – Now*

- Research Topic: *Private and trustworthy computation* — Advisor: Nektarios G. Tsoutsos
- My research focuses on privacy preserving technologies and on building efficient solutions that respect data privacy using cryptographic techniques such as *zero-knowledge proofs*, *homomorphic encryption*, and *secure multi-party computation*.

Department of Informatics & Telecommunications, University of Athens — *Athens, Greece*

Master of Science (MSc) in Computer Science — *October 2016 – September 2018*

The *Computer Systems (Software and Hardware)* specialization covers advanced topics in areas such as computer security & architecture, operating & distributed systems, programming languages, algorithms & data structures.

Department of Informatics & Telecommunications, University of Athens — *Athens, Greece*

Bachelor of Science (BSc) in Computer Science — *October 2012 – September 2016*

Publications

Articles

A4 D. Mouris, C. Gouert and N.G. Tsoutsos. **"Privacy-Preserving IP Verification"** in *IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD)* — *2021*

A3 D. Mouris and N.G. Tsoutsos. **"Zilch: A Framework for Deploying Transparent Zero-Knowledge Proofs"** in *IEEE Transactions on Information Forensics and Security (TIFS)* 16, (pp. 3269–3284) — *2021*

A2 D. Mouris, C. Gouert, N. Gupta, and N.G. Tsoutsos. **"Peak Your Frequency: Advanced Search of 3D CAD Files in the Fourier Domain"** in *IEEE Access, 8, (pp. 141481–141496)* 8, (pp. 141481-141496) — *2020*

A1 D. Mouris, N.G. Tsoutsos, and M. Maniatakos. **"TERMinator suite: Benchmarking Privacy-Preserving Architectures"** in *IEEE Computer Architecture Letters* 17(2), (pp. 122–125) — *2018*

Proceedings

P2 D. Mouris and N.G. Tsoutsos. **"Pythia: Intellectual Property Verification in Zero-Knowledge"** in *57th Design Automation Conference (DAC)* (pp. 1–6). ACM/EDAC/IEEE — *2020*

P1 P. Cronin, C. Gouert, D. Mouris, N.G. Tsoutsos, and C. Yang. **"Covert Data Exfiltration Using Light and Power Channels."** in *37th International Conference on Computer Design (ICCD)* (pp. 301–304). — *2019*

Theses

T1 A. Giannopoulos and D. Mouris. **"Privacy preserving medical data analytics using secure multi party computation. An end-to-end use case"** in *Masters Thesis, National and Kapodistrian University of Athens* Supervisors: Y. Ioannidis and M. Garofalakis — *2018*

Technical Skills

Programming Paradigms	Procedural, Object Oriented, Logic, Functional
Programming Languages	C, C++, Java, Python, Go, Haskell
Parallel Programming	POSIX processes & threads, MPI, Open MP
Assembly Languages	x86/x64, MIPS
Markup & Web Languages	NodeJS, JS, HTML
Scripting	Z shell, Bash
Database Systems	SQL, MySQL
Version Control	Git, Mercurial
Computer Graphics	LaTeX, OpenGL
Languages	Greek (native), English (fluent)

Teaching Assistant

University of Delaware

Reverse Engineering & Penetration Testing (Fall 2021), Microprocessor Systems (Fall 2020), Applied Cryptography (Spring 2020, 2021), Secure Software Design (Spring 2020, 2021), Embedded Systems Security (Fall 2019 – 2021)

University of Athens

System Programming (Spring 2017), Logic Programming (Spring 2017), Introduction to Programming (Fall 2014 – 2017), Operating Systems (Fall 2016)

Honors & Awards

2021 **1st Place for outstanding research presentation**, Reliable and Resilient Digital Manufacturing — *IEEE Workshop*

2020 **Scholarship**, Outstanding Academic Performance Scholarship, from the Gerondelis Foundation — *Grant $5,000*

2020 **DAC Young Fellow Program**, 57th Design Automation Conference, July 20-24 — *Virtual*

Professional Service

Reviewer

CSAW (2019 – 2021), IEEE Access (2020), Elsevier Future Generation Computing Systems (2020)

External/Sub-Reviewer

Journal of Ambient Intelligence and Humanized Computing (AIHC) (2019), Asian Hardware Oriented Security and Trust Symposium (AsianHOST) (2020), ACM/ESDA/IEEE Design Automation Conference (DAC) (2020 – 2021), IEEE/IFIP International Conference on Dependable Systems and Networks (DSN) (2020), IEEE Embedded Systems Letters (2019), IEEE International Symposium on Hardware Oriented Security and Trust (HOST) (2019), IEEE International Conference on Computer Design (ICCD) (2019), IEEE Access (2019), IEEE Computer (2019), IEEE Computer Society Annual Symposium on VLSI (2019), IEEE MICRO (2019), Springer Journal of Electronic Testing (JETT) (2019), Transactions on Computer-Aided Design of Integrated Circuits and Systems (TCAD) (2019), Transactions on Emerging Topics in Computing (TETC) (2019), Transactions on Information Forensics & Security (TIFS) (2019), IFIP/IEEE International Conference on Very Large Scale Integration (VLSI SoC) (2019)

Community Service

BlueHens Capture The Flag (CTF) Competition - UDCTF — *Global Event*

Global Co-lead — *2021*

Challenge developer for research-oriented cyber-security challenges ranging from exploiting vulnerabilities and reverse-engineering binaries to exploiting weak cryptographic parameters. *Event on ctftime.org/event/1298*

CSAW Cybersecurity Games & Conference – Embedded Security Challenge — *Global Event*

Global Co-lead — *2020, 2021*

Challenge developer for research-oriented embedded systems hacking.

CTF Mentoring — *Newark, DE, USA*

Mentor — *2019 – Now*

Binary exploitation and reverse engineering mentoring for the University of Delaware's undergraduate *Blue Hens* team.