Dimitrios (Dimitris) Mouris

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Applied cryptography researcher motivated by the impact of cryptography in contemporary society and in humanity.

Research & Work Experience

University of Delaware — *Newark, DE, USA*

RESEARCH ASSISTANT — *February 2019 – Now*

Applied Cryptography • Zero-knowledge Proofs • Homomorphic Encryption • Secure Multiparty Computation

Meta Inc. — *Bellevue, WA, USA & Remote*

PART-TIME STUDENT RESEARCHER (REMOTE) — *September 2022 – December 2022*

RESEARCH ENGINEER INTERN — *June 2022 – August 2022*

Development of privacy-enhancing solutions that solve real-world problems such as private attribution and privacy-preserving personalization. Research and implementation of *Delegated Private Matching for Compute.*   *Blogpost,*   *Private-ID*

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

SOFTWARE DEVELOPMENT ENGINEER (SDE) INTERN — *June 2021 – August 2021*

Development of Role-Based Access Control (RBAC) for Amazon Redshift to manage permissions and 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 for privacy-preserving medical data analytics (i.e., histograms and decision trees) using secure multi-party computation (MPC).   *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 Verifiable 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 multiparty 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 (Selected)

JOURNAL ARTICLES

- C. Gouert, D. Mouris, and N.G. Tsoutsos. **"SoK: New Insights into Fully Homomorphic Encryption Libraries via Standardized Benchmarks"** in *Proceedings on Privacy Enhancing Technologies (PoPETs)* — *2023*
- 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),* vol. 41, no. 7, pp. 2010–2023 — *2021*
- D. Mouris and N.G. Tsoutsos. **"Zilch: A Framework for Deploying Transparent Zero-Knowledge Proofs"** in *IEEE Transactions on Information Forensics and Security (TIFS),* vol. 16, pp. 3269–3284 — *2021*
- D. Mouris, N.G. Tsoutsos, and M. Maniatakos. **"TERMinator suite: Benchmarking Privacy-Preserving Architectures"** in *IEEE Computer Architecture Letters,* vol. 17, no. 2, pp. 122–125 — *2018*

CONFERENCE PAPERS

- D. Mouris, C. Gouert, and N.G. Tsoutsos. **"MPloC: Privacy-Preserving IP Verification using Logic Locking and Secure Multiparty Computation"** in *IEEE 29th International Symposium on On-Line Testing and Robust System Design (IOLTS)* — *2023*
- D. Mouris, C. Gouert, and N.G. Tsoutsos. **"zk-Sherlock: Exposing Hardware Trojans in Zero-Knowledge"** in *IEEE Computer Society Annual Symposium on VLSI (ISVLSI),* pp. 170-175 — *2022*
- D. Mouris and N.G. Tsoutsos. **"Pythia: Intellectual Property Verification in Zero-Knowledge"** in 57th *Design Automation Conference (DAC),* pp. 1–6. ACM/IEEE — *2020*

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

Open-access Archives

- D. Mouris, P. Sarkar, and N.G. Tsoutsos. **"PLASMA: Private, Lightweight Aggregated Statistics against Malicious Adversaries with Full Security"** in *Cryptology ePrint Archive,* Report 2023/080 *2023*
- D. Mouris, D. Masny, N. Trieu, S. Sengupta, P. Buddhavarapu, and B. Case. **"Delegated Private Matching for Compute"** in *Cryptology ePrint Archive,* Report 2023/012 *2023*

Theses

- A. Giannopoulos and D. Mouris. **"Privacy preserving medical data analytics using secure multi party computation. An end-to-end use case"** in *M.Sc. Thesis,* Supervisors: Y. Ioannidis and M. Garofalakis *2018*

Technical Skills

Programming Paradigms	Procedural ☰, Object Oriented ☰, Logic ☰, Functional ☰
Programming Languages	C ☰, Rust ☰, 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 ☰	**Languages**	Greek (native), English (fluent)

Teaching Assistant

University of Delaware

Reverse Engineering & Penetration Testing (Fall 2021, 2022), 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 Prog. (Spring 2017), Intro to Prog. (Fall 2014 – 2017), Operating Systems (Fall 2016)

Honors & Awards

2023	**Conference Stipend**, Travel stipend for Privacy Enhancing Technologies Symposium (PETS)	*Lausanne*
2021	**Student Conference Grant**, Registration for ACM Symp. on Computer and Com. Security (CCS)	*Virtual*
2021	**1st for outstanding research presentation**, IEEE Reliable and Resilient Digital Manufacturing	*Virtual*
2020	**Scholarship**, Outstanding Academic Performance Scholarship, from the Gerondelis Foundation	*Grant $5,000*
2020	**DAC Young Fellow Program**, 57*th* Design Automation Conference, July 20-24	*Virtual*
2016	**Scholarship**, Programming Languages Mentoring Workshop (PLMW) at SPLASH 2016, 10/30-11/4	*Amsterdam*

Professional Service

Reviewer

Privacy Enhancing Technologies (2023), CSAW Applied Research (2019 – 2022), IEEE Access (2020, 2022), Elsevier FGCS (2020)

External/Sub-Reviewer

ACM TACO (2021 – 2022), DAC (2020 – 2021), AIHC (2019), AsianHOST (2020), GLSVLSI (2023), IEEE Access (2019), IEEE Computer (2019), IEEE ESL (2019), IEEE HOST (2019, 2023), IEEE ICCD (2019), IEEE IOLTS (2023), IEEE ISVLSI (2019), IEEE MICRO (2019 – 2023), IEEE TCAD (2019, 2022, 2023), IEEE TETC (2019), IEEE TIFS (2019), IEEE DSN (2020), VLSI-SoC (2019) Springer JETT (2019)

Community Service

BlueHens Capture The Flag (CTF) Competition - UDCTF	*Global Event*
Global Co-lead	*2021, 2022*

Challenge developer and organizer for research and educational oriented CTF competition.   *Event on ctftime.org/event/1298*

CSAW Cybersecurity Games & Conference – Embedded Security Challenge	*Global Event*
Global Co-lead	*2020 ☉, 2021 ☉, 2022 ☉*

Challenge developer and organizer for research-oriented embedded systems hacking competition.

CTF Mentoring	*Newark, DE, USA*
Mentor	*2019 – Now*

Cryptography, binary exploitation, and reverse engineering mentoring for the University of Delaware's *Blue Hens* team.