DIMITRA GIANTSIDI

Computer Systems Researcher and Engineer

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EDUCATION

Ph.D. in Computer Science
University of Edinburgh, UK

📅 Sept 2019 – Nov 2024

Thesis: Trustworthy Distributed Data Management Systems, **Microsoft Research PhD Fellow**
Advisor: Prof. Dr. Pramod Bhatotia

- Invented distributed systems for the untrusted cloud infrastructure with increased security properties and performance.
- Leveraged the recent hardware advancements in trusted computing, byte-addressable storage and kernel-bypass networking and SmartNICs.
- Submitted **4 first-author papers** and **3 first-author paper acceptances (top tier)**.
- **Awarded a best (first-author) paper nominee at IEEE/IFIP DSN'22 [Rank: A1]** (3 nominees among 49 accepted papers and 262 total submissions).

MSc in Computer Science
University of Edinburgh, UK

📅 Sept 2018 – Sept 2019

Highest Honors, **Best Female MSc Thesis Award** [link]

MEng in Computer and Electrical Engineering
National Technical University of Athens, Greece

📅 Sept 2012 – March 2018

Highest Honors (Top 8%), **Top 0.1% in national qualification exams**

SELECTED PUBLICATIONS

Complete list available [here]

- TNIC: A trusted NIC architecture.
  Dimitra Giantsidi, Julian Pritzi, Felix Gust, Antonios Katsarakis, Atsushi Koshiba, Pramod Bhatotia
  ASPLOS'25 [paper] [code], Rank: A1 [link], Acceptance rate: 20%.
  Created a **trusted NIC architecture** on top of SmartNICs to build high-performance trustworthy distributed systems for untrusted cloud. Our system improves distributed systems performance up to $5\times$ w.r.t. to state-of-the-art while effectively minimizes the Trusted Computing Base to offering formally-proven security guarantees.

- Recipe: : Hardware-Accelerated Replication Protocols (**EuroSys'25 (Under review)**)
  Created a generic approach to transform existing crash fault tolerant replication protocols to tolerate Byzantine failures in untrusted cloud environments. Recipe achieves a speedup of up to $24\times$ compared to the state-of-the-art Byzantine fault tolerant systems.

- Flexlog: A shared log for stateful serverless computing.
  Dimitra Giantsidi, Emmanouil Giortamis, Nathaniel Tornow, Florin Dinu, Pramod Bhatotia
  ACM HPDC'23 [paper] [code], Rank: A1 [link], Acceptance rate: 18.20%.
  Created from the ground-up a distributed log system for serverless computing that outperforms the state-of-the-art up to $10\times$ offering better flexibility in semantics on top of byte-addressable storage.

- Treaty: Secure Distributed Transactions.
  Dimitra Giantsidi, Maurice Bailleu, Natacha Crooks, Pramod Bhatotia

EMPLOYMENT

Researcher
Security and Privacy Group, Microsoft Research

📅 Oct 2024–present   📍 Cambridge, UK

- Research on the next-generation secure storage stacks.

Research Intern
Cloud and Infrastructure Security Group, Microsoft Research

📅 May 2024–Aug 2024 📍 Redmond, US

- Designed and built a new record-replay framework for confidential and integrity-preserving LLMs execution.

Research Intern
Confidential Computing Group, Microsoft Research

📅 Sept 2021–Dec 2021 📍 Cambridge, UK

- Invented a new high-performance Key-Value store system for privileged attacks.
- Exceptional throughput results on widely used workloads in Microsoft's private datacenter.

Research Software Engineer
University of Edinburgh

📅 June 2023 – present   📍 Edinburgh, UK

- Invented a new trusted NIC architecture for the cloud on top of FPGA-based SmartNICs.
- The system is superior in performance and robustness w.r.t. current networked systems in the cloud.

Software Systems Engineer
Intracom Telecom

📅 Jul 2017 – Jul 2018   📍 Athens, Greece

- Designed and built a resource-aware infrastructure for the cloud-hosted datacenters.
- The system saved energy and cpu resources while company's clients SLAs were met.

ACADEMIC ACTIVITIES

Teaching Assistant and Mentor
University of Edinburgh

📅 Dec 2019 - Mar 2024 📍 Edinburgh, UK

- Selected as the most helpful and responsive assistant in Operating systems course in 2021–2023.

IEEE/IFIP DSN'22 [Best paper nominee] [code], Rank: A1, Acceptance rate: 18.20%.
Created the **first** distributed transactional storage system in **real hardware** with strong security properties (integrity–confidentiality–freshness).

- Anchor: A Library for Building Secure Persistent Memory Systems.
  *Dimitris Stravakakis, **Dimitra Giantsidi**, Maurice Bailleu, Philip Saendig, Shady Issa, Pramod Bhatotia*
  SIGMOD'24 [paper] [code], Rank: A1 [link], Acceptance rate: 20%.
  Designed a novel persistent memory (pm) engine that ensures strong security properties for the pm data with confidential and authenticated pm data structures, while preserving crash consistency through a secure logging protocol.

- Avocado: A Secure In-Memory Distributed Storage System.
  *Maurice Bailleu, **Dimitra Giantsidi**, Vasilis Gavrielatos, Le Quoc Do, Vijay Nagarajan, Pramod Bhatotia*
  USENIX ATC'21 [paper] [code], Rank: A1 [link], Acceptance rate: 23.1%.
  Created a Byzantine Fault tolerant Multi-Reader/Multi-Writer replication protocol on top of Trusted Execution Environments that outperforms the state-of-the-art protocols for 5—64×.

- Advised 6 BSc/MSc students (inspired one of them to join our research team as PhD student).

Reviewer

- Student Mentorship Chair at SOSP'26 [link].

- I served as a reviewer in top-tier systems conferences: USENIX Fast'25, Middleware'25, SysTex'25, Systor'25, APSys'25, SoCC'24, EuroPar'24, SysTEX'24, EuroSys'23, SoCC'23, WWW'22.

- Web chair at EuroSys'21: designed and build the conference site [link].