Dimitra Giantsidi

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RESEARCH INTERESTS

I like to build robust and efficient distributed systems!

My research lies in the field of dependability in distributed systems with focus on the fault tolerance and security. Exploring the applications of modern hardware, such as Trusted Execution Environments and Direct I/O for networking and storage, my work aims to increase the security and performance of widely adopted distributed systems. As such, I have build a few intersting systems: a secure distributed transactional store on top of Intel SGX, RDMA and LSM KVs, a shielded direct I/O network library for robust replication and a shared log system for serverless computing infrastucture on top of byte-addressable storage.

My current work focuses on the design of a trusted NIC architecture for large-scale distributed systems in untrusted cloud environments.

EDUCATION

PhD in Computer Science — Sept 2019 - present
University of Edinburgh, UK
· Sponsors: Microsoft Research, UK Rise, Advisor: Prof. Dr. Pramod Bhatotia
· Distributed systems, systems security, replication protocols

MSc in Computer Science — Sept 2018 - Aug 2019
University of Edinburgh, UK
· Best Performing Female MSc Thesis Award

MEng in Computer and Electrical Engineering — Sept 2012 - Feb 2018
National Technical University of Athens (NTUA), Greece

EMPLOYMENT

Microsoft Research, Cambridge, UK — Sept 2021 - Dec 2021
Research Scientist Intern
· Design of KVs for timing attacks.

University of Edinburgh, UK — June 2023 - present
Research Assistant
· Hardware/software co-design of a trusted NIC architecture.

Intracom Telecom, Athens, Greece — Jul 2017 - Jul 2018
Software & Systems Engineer
· Performance and energy optimization of NFV services.

Unversity of Edinburgh, UK and TUM, Germany — Sept 2019 - present
Thesis advisor and Teaching Assistant
· Operating Systems, Distributed Computing, Parallel Architectures, Object-oriented Programming.
· Supervised five BSc/MSc students on their BSc Thesis on Distributed and Networking systems.

PUBLICATIONS

Anchor: Secure Persistent Memory Architecture.
Dimitris Stravakakis, Dimitra Giantsidi, Maurice Bailleu, Philip Saendig, Shady Issa, Pramod Bhatotia.
SIGMOD'24

FlexLog: A Shared Log for Stateful Serverless Computing.
Dimitra Giantsidi, Emmanouil Giortamis, Nathaniel Tornow, Florin Dinu, Pramod Bhatotia.
ACM HPDC'23

Treaty: Secure Distributed Transactions.
Dimitra Giantsidi, Maurice Bailleu, Natacha Crooks, Pramod Bhatotia.
IEEE/IFIP DSN'22 (Best paper nominee)

Avocado: A Secure In-Memory Distributed Storage System.
Maurice Bailleu, Dimitra Giantsidi, Vasilis Gavrielatos, Le Quoc Do, Vijay Nagarajan, Pramod Bhatotia.
USENIX ATC'21

DICER: Diligent Cache Partitioning for Efficient Workload Consolidation.
Konstantinos Nikas, Nikela Papadopoulou, Dimitra Giantsidi, Vasileios Karakostas, Georgios Goumas, Nectarios Koziris.
ICPP'19

TALKS

ACM HPDC'23, Orlando, US
FlexLog: A Shared Log for Stateful Serverless Computing.

IEEE/IFIP DSN'22, Baltimore, US
Treaty: Secure Distributed Transactions.

Third Annual SGX Community Day 2022 (virtual)

USENIX ATC'21 (virtual) Avocado: A Secure In-Memory Distributed Storage System.

TECHNICAL SKILLS

Programming Languages	C/C++, Python, Bash, Golang, Java, Vitis HLS
Systems Programming	RocksDB and folly libraries, TEEs (Intel SGX, OpenEnclave SDK, AMD-sev), direct network I/O (DPDK, RDMA,Alveo SmartNICs), SPDK, Intel RDT, LLVM, collectd, POSIX/Unix, OpenMP and MPI, gRPC
Virtualization	KVM, Qemu/Libvirt, Docker, Kubernetes
Version Control	Git
Distributed Programming	Hadoop MapReduce, Socket and RPC programming

PROFESSIONAL EXPERIENCE

EuroSys'21
Web chair.

EuroSys'23, **SoCC'23**, **WWW'22**
Shadow PC member.

HONORS AND AWARDS

Microsoft Research Award 2019
Best Performing Female MSc Student Award, University of Edinburgh 2019
Highest Honors award 2012