Dimitrios Karnikis

dkarnik.is

Interests

Trusted Execution Environments (e.g. Intel SGX, Arm TrustZone), High-Level Languages (e.g. Javascript, Lua), Security, Embedded Devices, Operating and Distributed Systems

Education

Master of Science (MSc) student in Computer Science
University of Crete, Greece — *February 2019 – February 2021*

Bachelor of Science (BSc) in Computer Science
University of Crete, Greece — *Sept 2013 – November 2018*

Work Experience

- **Aarno Labs – Remote** — **TEE's, High-level Languages, CI/CD**
  Software Engineer — *February 2021 – April 2022*
- **DiSCS Laboratory – FORTH-ICS** — **Intel SGX, Arm TrustZone**
  Postgraduate research fellow — *February 2019 – February 2021*
- **DiSCS Laboratory – FORTH-ICS** — **Intel SGX, Android**
  Undergraduate research fellow — *November 2016 – February 2019*

Projects

- **LuaGardia: A Confidential Computing Framework for TEEs** (Master Thesis)
  Ported the Lua interpreter in SGX enclaves enabling dynamic code execution of legacy Lua applications.
- **PaSh: Light-touch Data-Parallel Shell Processing (Open Source)**
  PaSh is a system for parallelizing POSIX shell scripts. It achieves order-of-magnitude performance gain on scripts.
  - Automation scripts for correctness and performance tests based on Github Actions
  - Rendering and evaluation infrastructure for every Github commit
- **Atlas: Automated Scale-out of Trust-Oblivious Systems to TEEs**
  System for automatically scaling out components on TEEs. It uses program transformations to offload function calls of a given application and distribute load among TEE nodes, with respect to the sequential execution.
- **Andromeda Framework** (Bachelor Thesis)
  Ported Intel SGX to Android x86 ecosystem. Integrated Intel SGX technology in popular Android services

Publications

- **Practically Correct, Just-in-Time Shell Script Parallelization**
  Konstantinos Kallas, Tammam Mustafa, Jan Bielak, *Dimitris Karnikis*, Thurston HY Dang, Michael Greenberg, Nikos Vasilakis
  16th USENIX Symposium on Operating Systems Design and Implementation (OSDI 2022)
- **Andromeda: Enabling Secure Enclaves For The Android Ecosystem**
  Dimitris Deyannis, *Dimitris Karnikis*, Giorgos Vasiliadis, Sotiris Ioannidis
  4th Information Security Conference (ISC 2021)
- **An Enclave Assisted Snapshot-based Kernel Integrity Monitor**
  Dimitris Deyannis, *Dimitris Karnikis*, Giorgos Vasiliadis, Sotiris Ioannidis
  Proceedings of the 3rd ACM International Workshop on Edge Systems, Analytics and Networking 2020

Honors & Awards

- **November 2019 – February 2021**: **Postgraduate Scholarship**
  Scholarship by the Institute of Computer Science, FORTH - Hellas
- **November 2017 – February 2019**: **Undergraduate Scholarship**
  Scholarship by the Institute of Computer Science, FORTH - Hellas
- **Best Undergraduate Poster Award at ACM SRC, PACT 2018, Cyprus**

Advanced Technical Skills

- **Programming:** C, C++, Lua, JavaScript, Java
- **Tools:** Git, Docker, Github Actions (CI/CD), Bash, Unix Tools, GDB, Latex, Qemu, Wireshark
- **Systems:** Linux, Windows, Android, Embedded Devices
- **Other:** Intel SGX, Arm TrustZone, Socket Programming, PostgreSQL