

Since 2017

Teaching at the University of Edinburgh,

* TA / Tutor / Marker & covering Lectures
* Classes: Computer Architecture, Introduction to Computer Systems Parallel Architectures

DSP engineer, Akya Limited, UK

* EDA tool design in C++

2016

Edinburgh, United Kingdom

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Distributed Systems

* Consensus, Replication
* Fault tolerance, Availability
* Key-Value-Stores, RDMA

Computer Architecture

* Consistency, Persistency,
* Parallelism, Memory Systems

Parallel Programming

-Language-level memory models

Software Engineering

- C, C++, Python, Linux

Hardware Design

- VHDL, Verilog, SystemC

- ModelSim, Quartus

**Interests and skills**

I am a Computer Science Ph.D. candidate with a focus on Computer Systems. My expected graduation date is summer 2021.

[vasigavr1.github.io](https://vasigavr1.github.io/)

**Vasilis Gavrielatos**

PPoPP '20 Best paper nominee

**Projects & Publications**

Odyssey: The Impact of Modern Hardware on Strongly-Consistent Replication Protocols

* Designed Odyssey, a framework tailored towards replication protocol implementation for multi-threaded, RDMA-enabled, in-memory KVSes.
* Implemented and evaluated 10 protocols using Odyssey (including Paxos, ZAB & Hermes).
* Characterized the space of strongly-consistent replication protocols and demonstrated the interplay between modern hardware and protocols.

Kite: Efficient and Available Release Consistency for the Datacenter

* Designed Kite, the first highly-available, replicated Key-Value-Store that offers Release Consistency (and thus can be programmed similarly to C/C++11).
* Kite combines Eventual Store, ABD & Classic Paxos along with a novel fast/slow path mechanism to ensure both high-performance and availability.
* Demonstrated the efficacy of Kite by porting three lock-free data structures and showing that Kite outperforms the competition.

Scale-out ccNUMA: Exploiting Skew with Strongly-Consistent Caching

* Designed a distributed, RDMA-enabled and multi-threaded Key-Value-Store that balances the load in the face of a skewed access pattern by symmetrically caching the most popular items in all nodes.
* Implemented two fully-distributed protocols to offer two flavours of consistency.

Hermes: Fast and Reliable Data Replication with Linearizability

* Hermes is an RDMA-enabled, fault-tolerant replication protocol that offers Linearizability over a replicated Key-Value Store.
* Assisted in design space exploration, protocol design and the paper writing.
* Designed an RDMA-based version of ZAB to serve as a baseline.

Lazy Release Persistency

* A persistency model along with a microarchitectural technique that synergize with language-level memory models to ensure a consistent cut in the NVM after a crash.
* Assisted in design space exploration, technique design and paper writing.

Avocado: A Secure In-Memory Distributed Storage System

* Avocado is a secure replicated Key-Value Store that leverages Intel SGX, RDMA and the ABD protocol to achieve security, performance and consistency.
* Assisted in design space exploration, advised on enforcing consistency and RDMA.

EuroSys '18

ASPLOS '20

Micro Top Picks HonourableMention

ASPLOS '20

ATC '21

(submitted)

EuroSys '21

(to appear)

**Work Experience**

Ph.D. in Computer Science

- Thesis: Enforcing Consistency in the Datacenter

- Advisor: Vijay Nagarajan; Secondary Advisor: Boris Grot

- Sponsored by ARM Centre of Excellence

M.Sc. by research in Computer Science,

- Thesis: An RDMA-based skew-aware Key-Value Store

- Advisor: Vijay Nagarajan; Secondary Advisor: Boris Grot

B.Sc. & M.Sc. in Electrical & Computer Engineering

- Thesis: Heterogeneous links in VC-based Network-on-Chips

- Advisor: George Dimitrakopoulos

**Education**

CV

2009-2015

DUTH University

2016-2017

University of Edinburgh

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