

Alexandros DAGLIS

ScD, Computer Science
Assistant Professor in Computer Science, Georgia Institute of Technology

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RESEARCH INTERESTS

Computer architecture, datacenter systems, hardware-software co-design

EDUCATION

- 2012–2018 Doctor of Science degree in COMPUTER SCIENCE
École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland
Thesis: “Network-compute co-design for distributed in-memory computing”
Advisors: Prof. Babak FALSAFI & Prof. Edouard BUGNION
- 2007–2012 Diploma in ELECTRICAL & COMPUTER ENGINEERING (5-year degree)
National Technical University of Athens (NTUA), Athens, Greece
Thesis: “A study of a dynamic placement policy in a NUCA cache”
Advisor: Prof. Nectarios KOZIRIS

AWARDS & HONORS

- 2020 NSF award 2006602–SHF: *CNS Core: Small: Server architecture optimizations for microsecond-scale RPCs.*
- 2019 Google Faculty Research Award.
- 2019 ACM SIGARCH/IEEE CS TCCA Outstanding Dissertation – Honorable Mention for “contributions to network-centric server architecture for in-memory data-center services”.
- 2018 Nominated for an ACM Doctoral Dissertation Award by EPFL’s School of Computer and Communication Sciences.
- 2018 EPFL remarkable thesis distinction. Awarded to top 8% of PhD dissertations.
- 2013–2014 Microsoft Research Fellowship.
- 2012–2013 EPFL Computer Science Fellowship.

EMPLOYMENT

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| JAN. '19–PRESENT | Assistant Professor at School of Computer Science, College of Computing, Georgia Institute of Technology |
| SEP. '12–SEP. '18 | Research Assistant at EPFL, Lausanne, Switzerland
Research on Datacenter Technologies and In-Memory Rack-scale Computing <ul style="list-style-type: none">• Lead architect of the Scale-Out NUMA project. |

TEACHING

- Topics on Datacenter Design (cs8803) Fall 2019, Spring 2020, Spring 2021
- Advanced Computer Architecture Fall 2020, Fall 2021
(cs4290/6290 – ece4100/6100)

CONFERENCE PUBLICATIONS

- [1] **COSPlay: Leveraging Task-Level Parallelism for High-Throughput Synchronous Persistence.** Marina Vemou and Alexandros Daglis. In Proceedings of the *54th IEEE/ACM International Symposium on Microarchitecture (MICRO)*, Worldwide Event, 2021.
- [2] **Cerebros: Evading the RPC Tax in Datacenters.** Arash Pourhabibi, Mark Sutherland, Alexandros Daglis, Babak Falsafi. In Proceedings of the *54th IEEE/ACM International Symposium on Microarchitecture (MICRO)*, Worldwide Event, 2021.
- [3] **The NeBuLa RPC-Optimized Architecture.** Mark Sutherland, Siddharth Gupta, Babak Falsafi, Virendra Marathe, Dionisios Pnevmatikatos, Alexandros Daglis. In Proceedings of the *47th International Symposium on Computer Architecture (ISCA)*, Worldwide Event, 2020.
- [4] **Distributed Logless Atomic Durability with Persistent Memory.** Siddharth Gupta, Alexandros Daglis, Babak Falsafi. In Proceedings of the *52nd International Symposium on Microarchitecture (MICRO)*, Columbus, OH, USA, 2019.
- [5] **RPCValet: NI-Driven Tail-Aware Balancing of μ s-scale RPCs.** Alexandros Daglis, Mark Sutherland, Babak Falsafi. In Proceedings of the *24th International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS-XXIV)*, Providence, RI, USA, 2019.
- [6] **Design Guidelines for High-Performance SCM Hierarchies.** Dmitrii Ustiugov, Alexandros Daglis, Javier Picorel, Mark Sutherland, Edouard Bugnion, Babak Falsafi, Dionisios Pnevmatikatos. In Proceedings of the *4th Annual International Symposium on Memory Systems (MEMSYS)*, Washington DC, USA, 2018.
- [7] **The Mondrian Data Engine.** Mario Drumond, Alexandros Daglis, Nooshin Mirzadeh, Dmitrii Ustiugov, Javier Picorel, Babak Falsafi, Boris Grot, Dionisios Pnevmatikatos. In Proceedings of the *44th International Symposium on Computer Architecture (ISCA)*, Toronto, ON, Canada, 2017.
- [8] **The Case for RackOut: Scalable Data Serving Using Rack-Scale Systems.** Stanko Novakovic, Alexandros Daglis, Edouard Bugnion, Babak Falsafi, Boris Grot. In Proceedings of the *ACM Symposium on Cloud Computing (SoCC)*, Santa Clara, CA, USA, 2016.
- [9] **SABRes: Atomic Object Reads for In-Memory Rack-Scale Computing.** Alexandros Daglis, Dmitrii Ustiugov, Stanko Novakovic, Edouard Bugnion, Babak Falsafi, Boris Grot. In Proceedings of the *49th International Symposium on Microarchitecture (MICRO)*, Taipei, Taiwan, 2016.

- [10] **An Analysis of Load Imbalance in Scale-out Data Serving.** Stanko Novakovic, Alexandros Daglis, Edouard Bugnion, Babak Falsafi, Boris Grot. *ACM SIGMETRICS* (Short paper), Antibes Juan-Les-Pins, France, 2016.
- [11] **Manycore Network Interfaces for In-Memory Rack-Scale Computing.** Alexandros Daglis, Stanko Novakovic, Edouard Bugnion, Babak Falsafi, Boris Grot. In Proceedings of the *42nd International Symposium on Computer Architecture (ISCA)*, Portland, OR, USA, 2015.
- [12] **Scale-Out NUMA.** Stanko Novakovic, Alexandros Daglis, Edouard Bugnion, Babak Falsafi, Boris Grot. In Proceedings of the *19th International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS-XIX)*, Salt Lake City, UT, USA, 2014.

JOURNAL PUBLICATIONS

- [13] **IDIO: Orchestrating Inbound Network Data on Server Processors.** Mohammad Alian, Jongmin Shin, Ki-Dong Kang, Ren Wang, Alexandros Daglis, Daehoon Kim, Nam Sung Kim. *IEEE Computer Architecture Letters*, 2021.
- [14] **Exploiting Errors for Efficiency.** Phillip Stanley-Marbell, Armin Alaghi, Michael Carbin, Eva Darulova, Lara Dolecek, Andreas Gerstlauer, Ghayoor Gillani, Djordje Jevdjic, Thierry Moreau, Mattia Cacciotti, Alexandros Daglis, Natalie Enright Jerger, Babak Falsafi, Sasa Misailovic, Adrian Sampson, Damien Zufferey. *ACM Computing Surveys*, 2020.
- [15] **Mitigating Load Imbalance in Distributed Data Serving with Rack-Scale Memory Pooling.** Stanko Novakovic, Alexandros Daglis, Dmitrii Ustiugov, Edouard Bugnion, Babak Falsafi, Boris Grot. *ACM Transactions on Computer Systems (TOCS)*, 2019.
- [16] **Algorithm/Architecture Co-Design for Near-Memory Processing.** Mario Drumond, Alexandros Daglis, Nooshin Mirzadeh, Dmitrii Ustiugov, Javier Picorel, Babak Falsafi, Boris Grot, Dionisios Pnevmatikatos. *ACM SIGOPS Operating Systems Review*, 2018.

WORKSHOP PUBLICATIONS & ARTICLES

- [17] **eCloud: A Vision for the Evolution of the Edge-Cloud Continuum.** Joy Arulraj, Abhijit Chatterjee, Alexandros Daglis, Ashutosh Dhekne, and Umakishore Ramachandran. *IEEE Computer, Special Issue on Computing for Autonomy: Latency, Power, Resilience*, May 2021.
- [18] **Unleashing the Full Potential of Persistent Memory with Logless Atomic Durability.** Siddharth Gupta, Alexandros Daglis, Babak Falsafi. *11th Annual Non-Volatile Memories Workshop*, 2020.

INVITED TALKS

Optimizing the “Last Mile” with Network-Compute Co-Design

- Center for Research into Novel Computing Hierarchies (CRNCH) Summit Jan. 2021

Network/Architecture CoDesign

- *Happy Hour with Architects* online series, hosted by Samira Khan May 2020
- RPCValet: NI-Driven Tail-Aware Balancing of μ s-scale RPCs**
 - 24th International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS-XXIV), Providence, RI, USA (conference presentation) Apr. 2019
- Network-Centric Computing for Online Services**
 - CS seminar at Stony Brook University Sep. 2019
 - ECE seminar at the National Technical University of Athens (NTUA) Sep. 2018
 - CS research seminar at Imperial College London Apr. 2018
 - CIS seminar at the University of Pennsylvania Mar. 2018
 - EE departmental seminar at Princeton University Mar. 2018
 - CS research seminar at Rutgers University Mar. 2018
 - CS research seminar at UCLA Feb. 2018
 - SCS seminar at Georgia Tech Feb. 2018
- SABRes: Atomic Object Reads for In-Memory Rack-Scale Computing**
 - 49th International Symposium on Microarchitecture (MICRO), Taipei, Taiwan (conference presentation) Oct. 2016
- Chip Design for In-Memory Rack-Scale Computing**
 - EcoCloud Annual Event, Lausanne, Switzerland May 2016
- Manycore Network Interfaces for In-Memory Rack-Scale Computing**
 - Computing Systems Research Day at the National Technical University of Athens (NTUA), Athens, Greece Jan. 2016
 - 42nd International Symposium in Computer Architecture (ISCA), Portland, USA (conference presentation) Jun. 2015
- Hybrid Coherence for “The Machine”**
 - HP Labs, Palo Alto, USA May 2015

PROFESSIONAL SERVICE

PC MEMBER / REVIEWER:

- Conference Program Committee: HPCA 2022, ASPLOS 2021, USENIX ATC 2020, ISPASS 2020, CLUSTER 2019
- Conference External Review Committee: ISCA 2021, ISCA 2020, MICRO 2020
- Journals: CAL 2020, IEEE Transactions on Computers 2018, TACO 2019
- Workshops: WAX 2019, WORD 2019
- Other: MICRO Student Research Competition 2019

ORGANIZATIONAL ROLES:

- ASPLOS-XXVII Travel Grants Chair, 2022

- [Young Architect \(YArch\)](#) Workshop co-organizer, 2021 (at ASPLOS-XXVI)
- [Young Architect \(YArch\)](#) Workshop co-organizer and PC chair, 2020 (at ASPLOS-XXV)
- [Rising Stars in Computer Architecture \(RISC-A\)](#) Workshop co-organizer, 2019

RESEARCH PROPOSAL EVALUATIONS:

- NSF panelist, 2019
- NASA reviewer, 2019

PATENTS

- [1] *Atomic Object Reads for In-Memory Rack-Scale Computing* | US Patent 10,929,174, 2021
 - With Boris Grot and Babak Falsafi.
- [2] *Scale-Out Non-Uniform Memory Access* | US Patent 9,734,063, 2017
 - With Stanko Novakovic, Boris Grot, Edouard Bugnion, and Babak Falsafi.
 - Licensed by a major IT vendor in 2016.

LANGUAGES

GREEK, ENGLISH, GERMAN (limited working proficiency), FRENCH (elementary proficiency).