Iacovos G. Kolokasis

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Research Interests

- Memory and Storage Systems
- Managed Languages and Runtimes
- Garbage Collection

Research Experience

ICS–FORTH *Heraklion, Greece*
GRADUATE RESEARCH ASSISTANT *Sep. 2017 - Present*
- Evaluate different approaches to expand memory address space for JVM-based large-scale data analytics frameworks using fast storage devices
- Implement an extra storage level on Apache Spark to cache data off-heap on non-volatile memories.
- **Supervision:** Angelos Bilas and Polyvios Pratikakis

ICS–FORTH *Heraklion, Greece*
UNDERGRADUATE RESEARCH ASSISTANT *Jan. 2017 - Aug. 2017*
- Schedule techniques for data placement for large scale graph analytics (Apache Spark GraphX).
- **Supervisor:** Polyvios Pratikakis

Industrial Experience

SAP HANA VORA *Walldorf, Germany*
INTERN RESEARCH STUDENT *Jun. 2019 - Sep. 2019*
- Improve/Enhance the Data Structure of the Syntax Tree of the SQL Parser

Huawei Research Center *Munich*
PHD INTERN RESEARCH STUDENT *Jun. 2022 - Sep. 2022*
- Managed Runtime on Dissagregated Memory Environments

Education

University of Crete *Heraklion, Greece*
PH.D IN COMPUTER SCIENCE *Jan 2021 - Present*
- **Advisor:** Angelos Bilas, **Co-advisors:** Polyvios Pratikakis, Shoaib Akram

University of Crete *Heraklion, Greece*
M.SC. IN COMPUTER SCIENCE *Sep. 2017 - Oct 2020*
- **GPA:** 9.43/10
- **Thesis Topic:** TeraCache: Efficient Caching over Fast Storage Devices
- **Supervision:** Polyvios Pratikakis and Angelos Bilas

University of Crete *Heraklion, Greece*
B.SC. IN COMPUTER SCIENCE *Sep. 2011 - Jul. 2017*
- **GPA:** 7.62/10 (9th out of 65 in B.Sc. Graduates 2017)
- **Thesis Topic:** Locality optimizations for distributed graph analytics computations
- **Supervisor:** Polyvios Pratikakis

Publications

FULL PAPERS / ARTICLES ....

Iacovos G. Kolokasis, Giannos Evdorou, Shoaib Akram, Christos Kozanitis, Anastasios Papagiannis, Foivos Zakkak, Polyvios Pratikakis, and Angelos Bilas. TeraHeap: Reducing Memory Presure in Managed Big Data Frameworks. In Proceedings of the 28th ACM International Conference on Architectural Support for Programming Languages and Operating Systems, Volume 3 (ASPLOS '23), March 25–29, 2023, Vancouver, BC, Canada.

Iacovos G. Kolokasis, Anastasios Papagiannis, Foivos Zakkak, Polyvios Pratikakis, and Angelos Bilas.Say Goodbye to Off-heap Caches! On-heap Caches Using Memory-Mapped I/O. In Presented as part of the 12th USENIX Workshop on Hot Topics in Storage and File Systems (HotStorage '20), Boston, MA, 2020. USENIX. (**Best Presentation Award**)

Iacovos G. Kolokasis and Polyvios Pratikakis. Cut to Fit: Tailoring the Partitioning to the Computation. 2nd Joint International Workshop on Graph Data Management Experiences & Systems (GRADES) and Network Data Analytics (NDA), June 30-July 2019, Amsterdam, Netherlands

POSTERS ....

Iacovos G. Kolokasis, Shoaib Akram, Foivos Zakkak, Polyvios Pratikakis, and Angelos Bilas.DynaHeap: Dynamic Division of DRAM between Heterogeneous Managed Heaps. 19th European Conference on Computer Systems (EuroSys '24).

Iacovos G. Kolokasis, Shoaib Akram, Foivos Zakkak, Polyvios Pratikakis, and Angelos Bilas.DynaHeap: Dynamic Division of DRAM between Heterogeneous Managed Heaps. 29th ACM Symposium on Operating Systems Principles (SOSP '23).

Iacovos G. Kolokasis, Anastasios Papagiannis, Foivos Zakkak, Shoaib Akram, Christos Kozanitis, Polyvios Pratikakis, and Angelos Bilas.TeraCache: Efficient Caching over Fast Storage Devices. MSR Cambridge PhD Virtual Workshop on Next-Generation Cloud Infrastructure'21.

Iacovos G. Kolokasis, Anastasios Papagiannis, Foivos Zakkak, Polyvios Pratikakis, and Angelos Bilas.Garbage Collection or Serialization? Between a Rock and a Hard Place! 16th International Summer School on Advanced Computer Architecture and Compilation for High-Performance and Embedded Systems (ACACES).

TECHNICAL REPORTS ....

Iacovos G. Kolokasis and Polyvios Pratikakis. Cut to Fit: Tailoring the Partitioning to the Computation. Technical Report 469, ICS – FORTH, Apr 2018

Talks

Apr. 2024	**GateKeeper: Transparent Placement of Big Data Objects in Hybrid Managed Heaps**, 19th European Conference on Computer Systems (EuroSys '24)	*Athens, Greece*
Apr. 2024	**FlexHeap: Dynamic DRAM Partitioning Between Managed Heap and Page Cache**, CS446: Managed Runtime Systems	*Heraklion, Greece*
Mar. 2023	**TeraHeap: Reducing Memory Pressure in Managed Big Data Frameworks**, 28th ACM International Conference on Architectural Support for Programming Languages and Operating Systems (ASPLOS'23)	*Vancouver, Canada*
Jul. 2021	**TeraCache: Efficient Caching over Fast Storage Devices**, HPC I/O in the Data Center Workshop	*Virtual*
Mar. 2021	**TeraCache: Efficient Caching over Fast Storage Devices**, MSR Cambridge PhD Virtual Workshop on Next-Generation Cloud Infrastructure	*Virtual*
Nov. 2020	**TeraCache: Efficient Caching over Fast Storage Devices**, Data and AI Summit Europe'20	*Virtual*
Jul. 2020	**Say Goodbye to Off-heap Caches! On-heap Caches Using Memory-Mapped I/O**, HotStorage'20	*Virtual*
Oct. 2019	**In-Memory Computing at Scale? Look Beyond Physical DRAM**, University of Crete	*Heraklion, Greece*
Sep. 2019	**Improve/Enhance the Data Structure of the Syntax Tree of the SQL Parser**, SAP HANA	*Walldorf, Germany*
Sep. 2019	**Scaling In-Memory Computing for JVM-based Big Data Analytics**, SAP HANA	*Walldorf, Germany*
Sep. 2019	**Cut to Fit: Tailoring the Partitioning to the Computation**, SAP HANA	*Walldorf, Germany*
Jun. 2019	**Cut to Fit: Tailoring the Partitioning to the Computation**, GRADES-NDA 2019	*Amsterdam, Netherlands*
Jul. 2018	**Cut to Fit: Tailoring the Partitioning to the Computation**, 14th ACACES Summer School - HiPEAC	*Fiuggi, Italy*

Honors & Awards

Jan. 2024	**Award**, HiPEAC 2023 Paper Award	
Oct. 2023	**Scholarship**, Received a full scholarship to attend SOSP 2023 conference	*Koblenz, Germany*
Mar. 2023	**Scholarship**, Received a full scholarship to attend ASPLOS 2023 conference	*Vancouver, Canada*
2022 - 2024	**Scholarship**, Received a Meta (Facebook) PhD fellowship	*US*
2021 - 2022	**Scholarship**, Received a TA scholarship from the Special Account for Research Funds (E.L.K.E) of the National and Kapodistrian University during Spring semester'2022	*Heraklion,Greece*
2021 - 2024	**Scholarship**, Received a PhD fellowship from Cyprus State Scholarship Foundation	*Nicosia, Cyprus*
Jan. 2022	**Scholarship**, Received a full scholarship to attend ASPLOS 2022 conference	*Lausanne, Switzerland*
Dec. 2021	**Scholarship**, Received a full scholarship from Independent Power Transmission Operator (ADMIE)	*Heraklion*
Jul. 2021	**Scholarship**, Received a full scholarship from Usenix Association to attend OSDI 2021 conference	*Virtual Conference*
Feb. 2021	**Scholarship**, Received a full scholarship from Usenix Association to attend FAST 2021 conference	*Virtual Conference*
Dec. 2020	**Scholarship**, Received a full scholarship from Independent Power Transmission Operator (ADMIE)	*Heraklion*
Jul. 2020	**Scholarship**, Received a full scholarship from Usenix Association to attend SOSP 2020 conference	*Virtual Conference*
Sep. 2020	**Scholarship**, Received Scolarship from Independent Power Transmittion Operator (IPTO)	*Heraklion, Greece*
Jul. 2020	**Award**, Received Best Presentation Award in HotStorage 2020	*Virtual Conference*
Jul. 2020	**Scholarship**, Received a full scholarship from Usenix Association to ATC 2020 conference	*Virtual Conference*
Oct. 2019	**Scholarship**, Received a full scholarship from Huawei to attend SOSP 2019 conference	*Ontario, Canada*
Sep. 2018	**Scholarship**, Received a full scholarship from SAP SE to attend the 6th Heidelberg Laureate Forum	*Heidelberg, Germany*
Jul. 2018	**Scholarship**, Received a full scholarship from HiPEAC to attend the 14th ACACES Summer School	*Fiuggi, Italy*
Mar. 2017	**Scholarship**, Received five full graduate research scholarships from ICS–FORTH while I was working on my master thesis	*Heraklion, Crete*
Jul. 2017	**Scholarship**, Received a full undergraduate research scholarship from ICS–FORTH (3 months) while I was working on my thesis	*Heraklion, Crete*
Sep. 2012	**Scholarship**, My second year at the university was supported fully by fellowships "Stelios Orphanoudakis"	*Heraklion, Greece*
Jun. 2009	**Finalist**, Programming contest organized by CYTA	*Nicosia, Cyprus*

Service

Jul. 2022-Present	**Member**, JSys Artifact Evaluation Committee	
Oct. 2022	**Member of Organization Committee**, 2nd Career Day CSD, UoC	*Heraklion, Greece*
Apr. 2022	**Member**, EuroSys'22 Shadow Program Committee	*Virtual*
Jul. 2021	**Member**, OSDI'21 Artifact Evaluation Committee	*Virtual*
Apr. 2021	**Member**, ASPLOS'21 Artifact Evaluation Committee	*Virtual*
Apr. 2021	**Member**, EuroSys'21 Artifact Evaluation Committee	*Edinburgh*
Feb. 2021	**Member of Organization Committee**, 1st Career Day CSD, UoC	*Heraklion, Greece*
2019 - Present	**Student Member**, Association of Computing Machinery (ACM)	
Apr. 2021	**Volunteer (Host social media)**, EuroSys 2021	*Edinburgh, UK*
Jun. 2020	**Volunteer (Host zoom sessions)**, 2nd Summit on Gender Equality in Computing (GEC 2020)	*Virtual Conference*
Apr. 2020	**Volunteer (Lead EuroSys'20 Slack workspace and be a co-host in zoom sessions)**, EuroSys 2020	*Virtual Conference*
Mar. 2020	**Member**, ASPLOS'20 Artifact Evaluation Committee	*Switzerland*
Oct. 2019	**Co-head of Organization Committee**, 1st Graduate Students Conference CSD, UoC	*Heraklion, Greece*
Sep. 2019	**Deputy Graduate Students Representative**, Computer Science Dept., University of Crete (2019-2020)	*Heraklion, Greece*
Jan. 2018	**Graduate Students' Association Representative**, Computer Science Dept., University of Crete (2018-2020)	*Heraklion, Greece*
May 2012	**Public Relation Officer**, Board Council of the Cypriot Students' Union (2012-2015)	*Heraklion, Greece*

Teaching Experience

Systems Programming Lab (CS-255)
University of Crete

TEACHING ASSISTANT | INSTRUCTOR: ANGELOS BILAS
Spring 2021, 2022, 2023, 2024

- Answering students questions about the assignments
- Marking assignments submissions and examination scripts
- Part of my responsibilities was to teach tutorials for students, design assignments with the professor and another TA, and mark assignments and exams

Introduction to Computer Science (CS-100)
University of Crete

TEACHING ASSISTANT | INSTRUCTOR: POLYVIOS PRATIKAKIS
Fall 2018, 2019, 2020, 2021, 2022, 2023

- Part of my responsibilities was to teach tutorials for students, design assignments with the professor and another TA, and mark assignments and exams

Parallel Computing (CS-342)
University of Crete

TEACHING ASSISTANT | INSTRUCTOR: POLYVIOS PRATIKAKIS
Spr. 2018, 2019

- Part of my responsibilities was to teach tutorials for students on a weekly basis, mark assignments and exams

Data Structures (CS-240)   *University of Crete*

TEACHING ASSISTANT | INSTRUCTOR: PANAGIOTA FATOUROU   *Spr. 2018, 2020*
- Part of my responsibilities was to co-design the project with the professor and another TA, project presentation, answer students questions, and mark assignments and exams

Digital Design (CS-120)   *University of Crete*

TEACHING ASSISTANT | INSTRUCTOR: MANOLIS G.H. KATEVENIS   *Fall 2017*
- Rensponsible for two hour laboratories where undergraduate strudents learn the basics of digital design and implement a simple processor, mark assignments and exams

References

Angelos Bilas   *Heraklion, Greece*

PROFESSOR AT UNIVERSITY OF CRETE & ASSOCIATE RESEARCHER AT ICS–FORTH

bilas@ics.forth.gr

Polyvios Pratikakis   *Heraklion, Greece*

PROFESSOR AT UNIVERSITY OF CRETE & ASSOCIATE RESEARCHER AT ICS–FORTH

polyvios@ics.forth.gr

Shoaib Akram   *Canberra, Australian*

ASSISTANT PROFESSOR AT THE AUSTRALIAN NATIONAL UNIVERSITY

shoaib.akram@anu.edu.au