

# Iacovos G. Kolokasis

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## Research Interests

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

## Research Experience

### ICS-FORTH

GRADUATE RESEARCH ASSISTANT

- 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

Heraklion, Greece

Sep. 2017 - Present

### ICS-FORTH

UNDERGRADUATE RESEARCH ASSISTANT

- Schedule techniques for data placement for large scale graph analytics (Apache Spark GraphX).
- **Supervisor:** Polyvios Pratikakis

Heraklion, Greece

Jan. 2017 - Aug. 2017

## Industrial Experience

### SAP HANA VORA

INTERN RESEARCH STUDENT

- Improve/Enhance the Data Structure of the Syntax Tree of the SQL Parser

Walldorf, Germany

Jun. 2019 - Sep. 2019

### Huawei Research Center

PHD INTERN RESEARCH STUDENT

- Managed Runtime on Dissagregated Memory Environments

Munich

Jun. 2022 - Sep. 2022

## Education

### University of Crete

PH.D IN COMPUTER SCIENCE

- **Advisor:** Angelos Bilas, **Co-advisors:** Polyvios Pratikakis, Shoaib Akram

Heraklion, Greece

Jan 2021 - Present

### University of Crete

M.SC. IN COMPUTER SCIENCE

- **GPA:** 9.43/10
- **Thesis Topic:** TeraCache: Efficient Caching over Fast Storage Devices
- **Supervision:** Polyvios Pratikakis and Angelos Bilas

Heraklion, Greece

Sep. 2017 - Oct 2020

### University of Crete

B.SC. IN COMPUTER SCIENCE

- **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

Heraklion, Greece

Sep. 2011 - Jul. 2017

## 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 Pressure 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. 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

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

## Honors & Awards

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

## Service

May. 2023	<b>Member</b> , EuroSys'23 Artifact Evaluation Committee	Rome, Italy
Oct. 2022	<b>Member</b> , MICRO'22 Artifact Evaluation Committee	Chicago, USA
Oct. 2022	<b>Member of Organization Committee</b> , 2nd Career Day CSD, UoC	Heraklion, Greece
Apr. 2022	<b>Member</b> , EuroSys'22 Shadow Program Committee	Virtual
Oct. 2021	<b>Member</b> , SOSP'21 Artifact Evaluation Committee	Virtual
Jul. 2021	<b>Member</b> , OSDI'21 Artifact Evaluation Committee	Virtual
Apr. 2021	<b>Member</b> , ASPLOS'21 Artifact Evaluation Committee	Virtual
Apr. 2021	<b>Member</b> , EuroSys'21 Artifact Evaluation Committee	Edinburgh
Feb. 2021	<b>Member of Organization Committee</b> , 1st Career Day CSD, UoC	Heraklion, Greece
2019 - Present	<b>Student Member</b> , Association of Computing Machinery (ACM)	
Apr. 2021	<b>Volunteer (Host social media)</b> , EuroSys 2021	Edinburgh, UK
Jun. 2020	<b>Volunteer (Host zoom sessions)</b> , 2nd Summit on Gender Equality in Computing (GEC 2020)	Virtual Conference
Apr. 2020	<b>Volunteer (Lead EuroSys'20 Slack workspace and be a co-host in zoom sessions)</b> , EuroSys 2020	Virtual Conference
Mar. 2020	<b>Member</b> , ASPLOS'20 Artifact Evaluation Committee	Switzerland
Oct. 2019	<b>Co-head of Organization Committee</b> , 1st Graduate Students Conference CSD, UoC	Heraklion, Greece
Sep. 2019	<b>Deputy Graduate Students Representative</b> , Computer Science Dept., University of Crete (2019-2020)	Heraklion, Greece
Jan. 2018	<b>Graduate Students' Association Representative</b> , Computer Science Dept., University of Crete (2018-2020)	Heraklion, Greece
May 2012	<b>Public Relation Officer</b> , Board Council of the Cypriot Students' Union (2012-2015)	Heraklion, Greece

## Teaching Experience

### Systems Programming Lab (CS-255)

TEACHING ASSISTANT | INSTRUCTOR: ANGELOS BILAS

University of Crete  
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)

TEACHING ASSISTANT | INSTRUCTOR: POLYVIOS PRATIKAKIS

University of Crete  
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)

TEACHING ASSISTANT | INSTRUCTOR: POLYVIOS PRATIKAKIS

University of Crete  
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)

TEACHING ASSISTANT | INSTRUCTOR: PANAGIOTA FATOUROU

University of Crete  
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)

TEACHING ASSISTANT | INSTRUCTOR: MANOLIS G.H. KATEVENIS

University of Crete  
Fall 2017

- Responsible for two hour laboratories where undergraduate students learn the basics of digital design and implement a simple processor, mark assignments and exams

## References

### Angelos Bilas

PROFESSOR AT UNIVERSITY OF CRETE & ASSOCIATE RESEARCHER AT ICS-FORTH  
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Heraklion, Greece

### Polyvios Pratikakis

PROFESSOR AT UNIVERSITY OF CRETE & ASSOCIATE RESEARCHER AT ICS-FORTH  
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Heraklion, Greece

### Shoaib Akram

ASSISTANT PROFESSOR AT THE AUSTRALIAN NATIONAL UNIVERSITY  
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Canberra, Australian