Antonis Papaioannou

Postdoctoral Researcher,
Institute of Computer Science (ICS),
Foundation for Research and Technology - Hellas (FORTH)

CONTACT INFORMATION	Institute of Computer Science (ICS) Foundation for Research and Technology-Hellas (FORTH) *E-mail:* papaioan@ics.forth.gr https://antonis-papaioannou.github.io/

CITIZENSHIP   Greek

RESEARCH
INTERESTS

- Distributed systems
- Scalable elastic data stores
- Distributed system management
- Lifecycle management of multi-cloud applications

EDUCATION

PhD Candidate in Computer Science   November 2021
Computer Science Department, University of Crete, Greece
Area of Study: Parallel and Distributed Systems
Research topic: Adaptation policies in large-scale data stores
Advisor: Prof. Kostas Magoutis

M.Sc.in Computer Science   November 2013
Area of Study:
- Major: Parallel and Distributed Systems
- Minor: Information Systems

GPA: 9.21/10.0
Thesis Topic: *Design and Implementation of a System for Evaluating Distributed Application Deploymets in Multicloud*
Advisor: Prof. Evangelos Markatos
Co-Advisor: Prof. Kostas Magoutis

B.Sc. Degree in Computer Science   June 2010
Computer Science Department, University of Crete, Greece
GPA: 7.21/10.0
Thesis Topic: *Security Assessment on Information Systems Exposed to Web Attacks*
Advisor: Dr. Manifavas Harry

PROFESSIONAL
EXPERIENCE

Postdoctoral Researcher   Dec. 2021 - to date
Information Systems Laboratory (ISL), ICS - FORTH
Research Area: Adaptation techniques in large-scale distributed data stores

Research Assistant   Jan. 2019 - Nov. 2021
Information Systems Laboratory (ISL), ICS - FORTH
Research Area: Adaptation techniques in large-scale distributed data stores
Advisor: Prof. Kostas Magoutis

Systems and Network administrator   March 2018 - Dec 2018
Hellenic Army, Research and Information Corps
My duties were:
- Systems administrator

Maintenance and support of the infrastructure that hosts critical applications of Hellenic Army.
Initial configuration and deployment of Dell PowerEdge VRTX servers.
- Network administrator
Redesign and deployment of the local area network topology supporting the HQ of a high formation military unit.
Bridge the local network with the private network of Hellenic Army. The network is used for highly classified information and enforces a strict security policy.

Research Assistant   November 2016 - February 2018
Information Systems Laboratory (ISL), ICS - FORTH
Research Area: Adaptation techniques in large-scale distributed data stores
Advisor: Prof. Kostas Magoutis

Research Assistant   November 2014 to October 2016
Computer Architecture and VLSI Systems (CARV) Laboratory, ICS - FORTH
Research Area: Adaptation techniques in large-scale distributed data stores
Advisor: Prof. Kostas Magoutis

Research Associate   November 2013 to November 2014
Computer Architecture and VLSI Systems (CARV) Laboratory, ICS - FORTH
Research Area: Cloud Computing, Distributed Storage Systems.
Advisor: Prof. Kostas Magoutis

Research Assistant   November 2012 to October 2013
Computer Architecture and VLSI Systems (CARV) Laboratory, ICS - FORTH
Research Area: Evaluating Distributed Application Deployments in Multi-Clouds
Advisor: Prof. Kostas Magoutis

Java Developer, Database administrator   April 2012 to September 2012
Help at Home, Heraklion, Crete, Greece
Job description: Design and develop a data model for customer's data. Design and develop an application to assign task to employees based on customer's requests.

Research Assistant   November 2011 to October 2012
Distributed Computing Systems (DCS) Laboratory, ICS - FORTH
Research Area: Impact of social media plugins on the web
Advisor: Prof. Evangelos Markatos

Database administrator   November 2009 to April 2010
ANAPTIXI, Heraklion, Crete, Greece
Job description: Design and develop a sustainable data model for customer's data. Also responsible for database maintenance, tuning, backup and replication.

RESEARCH PROJECTS

StreamStore   2020 - present
https://streamstore-project.eu
Funded by the Hellenic Foundation for Research and Innovation (HFRI) (Grant ID: HFRI-FM17-1998)
The project aims to fully support highly elastic, scalable, and fault-tolerant stateful stream-processing systems, through the evolution of the elasticity, predictability, and availability of scalable data store technology beyond the state of the art.

Evovle   2019 - present
https://www.evolve-h2020.eu
Funded by the European Union (GA No. 825061)
The project aims to merge High-performance computing (HPC), Cloud and Big Data in a large-scale testbed applied in 7 domains, from mobility to agriculture to

urban planning.

My work focuses on the design of microservices to support streaming analytics to support continuous data processing using state of the art frameworks, specially optimized to take advantage of HPC resources.

PaaSage   2012 - 2016

http://wwww.paasage.eu

Funded by the European Union (GA No. 317715)

PaaSage is a development and deployment platform, with an accompanying methodology and language, with which developers of enterprise systems can access services of cloud platforms in a technology neutral approach that abstracts the technical details while guiding them to configure their applications for best performance.

I designed and implemented a framework for evaluating distributed application deployments in multi-Cloud platforms. I was involved to the design of the Metadata Database containing historical data from past application executions. I was also responsible for the deployment and maintenance of the database backend of the social network developed within the project.

TEACHING
EXPERIENCE

Teaching Assistant

Department of Computer Science, University of Crete

- CS590.45 Modern Topics in Scalable Storage Systems   Spring 2021, 2020
- CS452 Introduction to the Science and Technology of Services   Fall 2020
- CS-559 Infrastructure Technologies for Large-Scale Service-Oriented Systems
                                                  Fall 2020, 2019, Spring 2015, 2013
- CS-335 Computer Networks   Fall 2019
- CS-240 Data Structures   Spring 2019, 2015 – 2017, Fall 2014 – 2017
- CS-345 Operating Systems   Fall 2012
- CS-459 Internet Measurements   Spring 2012
- CS-463 Information Retrieval Systems   Fall 2011, Fall 2010
- CS-359 Web Programming   Spring 2011

PEER-REVIEWED
PUBLICATIONS

A. Papaioannou and K. Magoutis, Amoeba: Aligning Stream Processing Operators with Externally-Managed State, to appear in the *14th IEEE/ACM International Conference on Utility and Cloud Computing*, Leicester, UK, December 2021

A. Papaioannou, Chrysostomos Zeginis and K. Magoutis, The Case for Better Integrating Scalable Data Stores and Stream-Processing Systems, in *the IEEE Cluster Conference 2020*, Kobe, Japan, September 2020. (two page proceedings paper accompanying a poster)

A. Papaioannou, Novel adaptation mechanisms for distributed data stores, in *the 14th EuroSys Doctoral Workshop (EuroDW)*, 2020

A. Chronarakis, **A. Papaioannou** and K. Magoutis, On the impact of log compaction on incrementally checkpointing stateful stream-processing operators, in *Proceedings of the 38th International Symposium on Reliable Distributed Systems Workshops (SRDSW)*, Lyon, France, October 1, 2019
url: https://doi.org/10.1109/SRDSW49218.2019.00008

A. Papaioannou and K. Magoutis, Replica-group leadership change as a performance enhancing mechanism in NoSQL data stores, in *Proceedings of the 38th IEEE International Conference on Distributed Computing Systems (ICDCS 2018)*, Vienna, Austria, July 2 - 5, 2018
url: https://doi.org/10.1109/ICDCS.2018.00147

A. Papaioannou and K. Magoutis, Incremental elasticity for NoSQL data stores,

in *Proceedings of the 36th IEEE International Symposium on Reliable Distributed Systems (SRDS 2017)*, Hong Kong, China, September 26-29, 2017
url: https://doi.org/10.1109/SRDS.2017.26

A. Papaioannou and K. Magoutis, Incremental elasticity for NoSQL data stores, in *Proceedings of the 37th IEEE International Conference on Distributed Computing Systems (ICDCS 2017)*, Atlanta, GA, USA, June 5-8, 2017, (two page paper accompaning a poster)
url: https://doi.org/10.1109/ICDCS.2017.177

F. Karniavoura, **A. Papaioannou** and K. Magoutis, C2C: An Automated Deployment Framework for Distributed Applications on Multi-Clouds, in *9th Symposium and Summer School on Service Oriented Computing*, 2015, Crete, Greece, June 2015; appears as IBM Technical Report RC25564, 2015

A. Papaioannou, D. Metallidis and K. Magoutis, Cross-layer Management of Distributed Applications on Multi-Clouds, in *2015 IEEE International Symposium on Integrated Network Management - IM'15*, Ottawa, Canada, May 2015, Ottawa, ON, 2015, pp. 552-558.
url: http://dx.doi.org/10.1109/INM.2015.7140336

A. Papaioannou and K. Magoutis, An architecture for evaluating distributed application deployments in multi-clouds, *in Proceedings of the 2013 IEEE International Conference on Cloud Computing Technology and Science - Cloudcom '13*, Bristol, UK, December 2013, pp. 547-554.
url: http://dx.doi.org/10.1109/CloudCom.2013.79

G. Baryannis, P. Garefalakis, K. Kritikos, K. Magoutis, **A. Papaioannou**, D. Plexousakis, and C. Zeginis, Lifecycle management of service-based applications on multi-clouds: A research roadmap, *in Proceedings of 2013 International Workshop on Multi-cloud Applications and Federated Clouds (MultiCloud'13) ACM, New York, NY, USA, 13-20*,
url: http://dx.doi.org/10.1145/2462326.2462331

I. Kitsos, **A. Papaioannou**, N. Tsikoudis, and K. Magoutis, Adapting data-intensive workloads to generic allocation policies in cloud infrastructures, *in Network Operations and Management Symposium (NOMS), 2012, Maui, HI, 2012, pp. 25-33.*
url: http://dx.doi.org/10.1109/NOMS.2012.6211879

JOURNAL PAPERS   **Antonis Papaioannou** and Kostas Magoutis, Addressing the read-performance impact of reconfigurations in replicated key-value stores, to be published in the *IEEE Transactions on Parallel and Distributed System (TPDS)*

Kostas Magoutis, Christos Papoulas, **Antonis Papaioannou**, Flora Karniavoura, Dimitrios-Georgios Akestoridis, Nikos Parotsidis, Maria Korozi, Asterios Leonidis, Stavroula Ntoa and Constantine Stephanidis Design and implementation of a social networking platform for cloud deployment specialists, *SpringerOpen Journal of Internet Services and Applications*, 2015
url: http://dx.doi.org/10.1186/s13174-015-0033-5

POSTERS   **A. Papaioannou** and K. Magoutis, The Case for Better Integrating Scalable Data Stores and Stream-Processing Systems, to appear in *the IEEE Cluster Conference 2020*, Kobe, Japan, September 2020

A. Chronarakis, **A. Papaioannou** and K. Magoutis, On the impact of log compaction on incrementally checkpointing stateful stream-processing operators, in the *38th International Symposium on Reliable Distributed Systems (SRDS)*, Poster ses-

sion, Lyon, France, October 1, 2019

A. Papaioannou and K. Magoutis, Incremental elasticity for NoSQL data stores, in the *37th IEEE International Conference on Distributed Computing Systems (ICDCS 2017)*, Atlanta, GA, USA, June 5-8, 2017

A. Papaioannou, D. Metallidis, and K. Magoutis. SmartM: Automated Lifecycle Management Framework for Distributed Applications on Multi-Clouds. *Proc. of the Tenth International Summer School on Advanced Computer Architecture and Compilation for High-Performance and Embedded Systems (ACACES), Poster session, Fiuggi, Italy, July 2014*

Honors and
Awards
- Maria Michail Manasaki Doctoral Fellowship (2019-2020)
- PhD scholarship, Hellenic Foundation for Research and Innovation (HFRI/EΛΙΔΕΚ) Sep 2017 – Sep 2018
- Travel Grant for the 37th IEEE International Conference on Distributed Computing Systems (ICDCS 2017) at Atlanta, GA, USA, June 2017
- HiPEAC attendance grant for the Tenth International Summer School on Advanced Computer Architecture and Compilation for High-Performance and Embedded Systems (ACACES) at Fiuggi, Italy, July 2014
- Graduate student scholarship, FORTH (ISL Lab)   Nov. 2016 to Aug. 2017 Mar. 2019 to Nov. 2021
- Graduate student scholarship, FORTH (CARV Lab)   Nov. 2014 Oct. 2016
- Graduate student scholarship, FORTH (CARV Lab)   Nov. 2012 to Oct. 2013
- Graduate student scholarship, FORTH (DCS Lab)   Nov. 2011 to Oct. 2012

Conferences
and Events
- Shadow program committee member for the EuroSys 2020.
- Volunteer in the organization of EyroSys 2020
- Volunteer in the organization of the 14th EyroSysDoctoral Workshop (EuroDW), 2020
- Subreviewer for 14th IEEE/ACM International Symposium on Cluster, Cloud and Grid Computing (CCGrid2014).
- Subreviewer for 19th International European Conference on Parallel and Distributed Computing (Euro-Par 2013).
- ACACES'14 - Tenth International Summer School on Advanced Computer Architecture and Compilation for High-Performance and Embedded Systems. Fiuggi, Italy, July 2014

Foreign
Languages
- Greek: Native
- English: First Certificate in English, Cambridge University
- German: Zertifikat Deutsch, Goethe Institut

References   Available upon request