

Manoussos-Gavriil (Manos) Athanassoulis

Postdoctoral Researcher, DASlab, Harvard University

Email: manos@seas.harvard.edu

Web: <http://manos.athanassoulis.net>

RESEARCH INTERESTS

I am interested in **designing data systems**. My goal is to build systems that utilize efficiently the underlying **storage and processing hardware**, and match a wide range of application requirements like analytical processing, transactional processing, and, scientific data exploration. I am particularly interested in the **data and metadata organization** in the **levels of the memory and storage hierarchy**, in the data structures that are (and can be) employed to **index, access, and update data**, and in the **query processing** paradigms that are needed for new system designs and workloads.

PROFESSIONAL EXPERIENCE

09/2014 – now **Postdoctoral Researcher/Research Fellow at Harvard University** Cambridge, MA, USA
Member of the Data Systems Laboratory (DASlab), working with prof. Stratos Idreos.

01/2017 – 05/2017 **Visiting Lecturer at Tufts University** Medford, MA, USA
Visiting Lecturer teaching the undergraduate course Database Systems.

10/2008 – 06/2014 **PhD Researcher at Ecole Polytechnique Fédérale de Lausanne** Lausanne, Switzerland
Member of the Data-Intensive Applications and Systems (DIAS) laboratory, advised by prof. Anastasia Ailamaki.

07/2011 – 10/2011 **PhD Intern at IBM Watson Research Labs** Hawthorne, NY, USA
Intern at the Database Research Group, mentored by Bishwaranjan Bhattacharjee and prof. Ken Ross.

10/2004 – 08/2008 **Research Assistant at University of Athens** Athens, Greece
Member of the Pervasive Computing Research Group, supervised by prof. Stathes Hadjiefthymiades.

HONORS & AWARDS

2017 “Best of SIGMOD” selection with invitation to publish at TODS Journal

2017 “Most Reproducible Paper Award” at SIGMOD

2015-2016 Harvard University Certificate of Distinction in Teaching (Fall 2015, Spring 2016, Fall 2016)

2015-2016 SNSF Early Postdoc Mobility Fellowship

2014 Harvard University Certificate of Teaching Excellence (Fall 2014)

2013 EPFL Outstanding Teaching Assistantship Award

2011-2012 IBM Ph.D. Fellowship

2010 “Best of VLDB” selection with invitation to publish at VLDB Journal

2007 Prize for having the best student record, M.Sc., University of Athens

2006-2007 Graduate Fellowship from Onassis Foundation

2005 Valedictorian B.Sc., University of Athens

2001-2005 Fellowship from State Fellowship Foundation of Greece

EDUCATION

Ph.D. in Computer Science, February 2014 **Ecole Polytechnique Fédérale de Lausanne**
Thesis: “Solid-State Storage and Work Sharing for Efficient Scaleup Data Analytics”
Advisor: Prof. Anastasia Ailamaki (natassa@epfl.ch)

M.Sc. in Computer Systems Technology, March 2008 **University of Athens, Greece**
Thesis: “Thread scheduling technique for avoiding page thrashing”
Supervisor: Prof. Stathes Hadjiefthymiades (shadj@di.uoa.gr)

B.Sc. in Informatics & Telecommunications, September 2005 **University of Athens, Greece**
Thesis: “A Multi-Criteria Message Forwarding Architecture for Wireless Sensor Networks”
Supervisor: Prof. Stathes Hadjiefthymiades (shadj@di.uoa.gr)

PERSONAL RESEARCH GRANTS

2015-2016 Swiss National Science Foundation (SNSF), Early Postdoc Mobility Fellowship, Grant No. P2ELP2_158936, “The RUM Conjecture and the Big Data Access Wizard”

PUBLICATIONS**Journal and Journal-equivalent Conference Papers**

13. M. Olma, M. Karpathiotakis, I. Alagiannis, **M. Athanassoulis**, A. Ailamaki, “Slalom: Coasting Through Raw Data via Adaptive Partitioning and Indexing”, In Proc. of Very Large Databases Endowment (**PVLDB**), Vol. 10(10), **2017**.
12. M. Kester, **M. Athanassoulis**, S. Idreos, “Access Path Selection in Main-Memory Optimized Data Systems: Should I Scan or Should I Probe?”, In Proc. of the ACM **SIGMOD** International Conference on Management of Data, Chicago, IL, May 14-19, **2017**.
11. N. Dayan, **M. Athanassoulis**, S. Idreos, “Monkey: Optimal Navigable Key-Value Store”, In Proc. of the ACM **SIGMOD** International Conference on Management of Data, Chicago, IL, May 14-19, **2017**.
Invited for publication at the Special Issue of TODS Journal for SIGMOD 2017 Best Papers (one of top 4 papers).
10. **M. Athanassoulis**, Z. Yan, S. Idreos, “UpBit: Scalable In-Memory Updatable Bitmap Indexing”, In Proc. of the ACM **SIGMOD** International Conference on Management of Data, San Francisco, CA, June 26-July 1, **2016**.
Awarded the ACM Computationally Replicable label & Won the Most Reproducible Paper award.
9. **M. Athanassoulis**, S. Idreos, “Design Tradeoffs of Data Access Methods”, (Tutorial) In Proc. of the ACM **SIGMOD** International Conference on Management of Data, San Francisco, CA, June 26-July 1, **2016**.
8. **M. Athanassoulis**, S. Chen, P. Gibbons, A. Ailamaki, R. Stoica, “Online Updates on Data Warehouses via Judicious Use of Solid-State Storage”, Transactions on Database Systems (**TODS**), Vol. 40(1), **2015**.
7. **M. Athanassoulis**, A. Ailamaki, “BF-Tree: Approximate Tree Indexing”, In Proc. of Very Large Databases Endowment (**PVLDB**), Vol. 7(14), **2014**.
6. I. Psaroudakis, **M. Athanassoulis**, A. Ailamaki, “Sharing Data and Work Across Concurrent Analytical Queries”, In Proc. of Very Large Databases Endowment (**PVLDB**), Vol. 6(9), **2013**.
5. R. Johnson, I. Pandis, R. Stoica, **M. Athanassoulis**, and A. Ailamaki. “Scalability of write-ahead logging on multicore and multsocket hardware”, The VLDB Journal (**VLDBJ**), Vol. 21(2), **2012**.
4. **M. Athanassoulis**, S. Chen, A. Ailamaki, P. Gibbons, and R. Stoica, “MaSM: Efficient Online Updates in Data Warehouses”, In Proc. of the ACM **SIGMOD** Int’l Conf. on Management of Data, Athens, Greece, June 12-16, **2011**.
3. **M. Athanassoulis**, A. Ailamaki, S. Chen, P. Gibbons, and R. Stoica, “Flash in a DBMS: Where and How?”, **IEEE Data Engineering Bulletin**, Vol. 33(4), **2010**.
2. S. Chen, A. Ailamaki, **M. Athanassoulis**, P. Gibbons, R. Johnson, I. Pandis and R. Stoica, “TPC-E vs. TPC-C: Characterizing the New TPC-E Benchmark via an I/O Comparison Study”, **SIGMOD Record**, Vol. 39(4), **2010**.
1. R. Johnson, I. Pandis, R. Stoica, **M. Athanassoulis**, and A. Ailamaki, “Aether: A Scalable Approach to Logging”, In Proc. of Very Large Databases Endowment (**PVLDB**), Vol. 3(1-2), **2010**.
Invited for publication at the Special Issue of VLDB Journal for VLDB 2010 Best Papers (one of top 5 papers).

Conference Vision Papers

2. **M. Athanassoulis**, M. S. Kester, L. M. Maas, R. Stoica, S. Idreos, A. Ailamaki, M. Callaghan, “Designing Access Methods: The RUM Conjecture”, In Proc. of the International Conference on Extending Database Technology (**EDBT**), Bordeaux, France, March 15-18, **2016**.
1. A. Wasay, **M. Athanassoulis**, S. Idreos, “Queriosity: Automated Data Exploration”, In Proc. of the International Congress on **Big Data**, New York, NY, June 27-July 2, **2015**.

Workshop and other Conference Papers

9. S. Idreos, **M. Athanassoulis**, N. Dayan, D. Guo, M. S. Kester, L. Maas, K. Zoumpatianos, “Past and Future Steps for Adaptive Storage Data Systems: From Shallow to Deep Adaptivity”, (Keynote) In Proc. of the International Workshop on Enabling Real-Time Business Intelligence (**BIRTE**), New Delhi, India, September 5, **2016**.
8. S. Xi, O. Babarinsa, **M. Athanassoulis**, S. Idreos, “Beyond the Wall: Near-Data Processing for Databases”, In Proc. of the Int’l Workshop on Data Management on New Hardware (**DaMoN**), Melbourne, VIC, Australia, June 1, **2015**.

7. I. Alagiannis, **M. Athanassoulis**, and A. Ailamaki, “Scaling Up Analytical Queries with Column-Stores”, In Proc. of the International Workshop on Testing Database Systems, (**DBTest**), New York, NY, June 24, **2013**.
6. **M. Athanassoulis**, B. Bhattacharjee, M. Canim, K. Ross, “Querying Persistent Graphs using Solid State Storage”, 4th Annual Non-Volatile Memories Workshop (**NVMW**), San Diego, CA, March 3-5, **2013**.
5. **M. Athanassoulis**, B. Bhattacharjee, M. Canim, K. Ross, “Path Processing Using Solid State Storage”, In Proc. of the 3rd International Workshop on Accelerating Data Management Systems Using Modern Processor and Storage Architectures (**ADMS**), Istanbul, Turkey, August 27, **2012**.
4. R. Johnson, **M. Athanassoulis**, R. Stoica and A. Ailamaki, “A New Look at the Roles of Spinning and Blocking”, In Proc. of the Int’l Workshop on Data Management on New Hardware (**DaMoN**), Providence, RI, June 28, **2009**.
3. R. Stoica, **M. Athanassoulis**, R. Johnson and A. Ailamaki, “Evaluating and Repairing Write Performance on Flash Devices”. In Proc. of the International Workshop on Data Management on New Hardware (**DaMoN**), Providence, RI, June 28, **2009**.
2. **M. Athanassoulis**, I. Alagiannis and S. Hadjiefthymiades, “Energy Efficiency in Wireless Sensor Networks: A Utility-Based Architecture”, In Proc. of the 13th European Wireless (**EW**), Paris, France, April 1-4, **2007**.
1. **M. Athanassoulis**, I. Alagiannis and S. Hadjiefthymiades, “A Multi-Criteria Message Forwarding Architecture for Wireless Sensor Networks”, In Proc. of the 10th Pan-Hellenic Conference on Informatics (**PCI**), Volos, Greece, November 11-13, **2005**.

Demo Papers

1. I. Psaroudakis, **M. Athanassoulis**, M. Olma, A. Ailamaki, “Reactive and Proactive Sharing Across Concurrent Analytical Queries”, In Proc. of the ACM **SIGMOD** International Conference on Management of Data, Snowbird, UT, USA, June 22-27, **2014**.

PATENTS

- “Analytic Database with Optimal Navigable Key-value Store.” Filed on 1/2017 (US Patent Office).

TEACHING EXPERIENCE

Lecturer at Tufts University (2017)

- Database Systems (Spring 2017)

Head Teaching Fellow at Harvard University (2014-2016)

- Data Systems (Fall 2015, Fall 2016) and Big Data Systems (Fall 2014, Spring 2016)

Head TA at Ecole Polytechnique Fédérale de Lausanne (2010-2013)

- Databases/Introduction to Database Systems (Spring 2010, Spring 2011, Spring 2012, Spring 2013).

Teaching Assistant at University of Athens (2005-2007)

- Foundations of Databases (Spring 2006, Spring 2007), Computer Architecture I (Fall 2006), Operating Systems (Fall 2005, Fall 2006)

SERVICE

Committee	ACM SIGMOD 2019, ACM SIGMOD 2018, IEEE ICDE 2018, SSDBM 2018, HardBD 2018,
Member/Reviewer	AIMD 2018, BigVis 2018, HDMS 2018, IEEE ICDE PhD Workshop 2017, HDMS 2017, VLDB 2017, HDMS 2016, DB Reproducibility 2017/2018, DB Reproducibility 2016/2017, DB Reproducibility 2015/2016
Journal Reviewer	IEEE Transactions on Knowledge and Data Engineering (TKDE), 2018; IEEE Transactions on Computers (TC), 2018; IEEE Transactions on Cloud Computing (TCC), 2017; Distributed and Parallel Databases (DAPD), 2017; Computers and Security (COSE), 2017; Journal of Internet Services and Applications (JISA), 2016; The Computer Journal, 2013; Information Systems (IS), 2013; ACM Transactions on Storage (TOS), 2012
External Reviewer	The VLDB Journal (VLDBJ), 2015; ACM Transactions on Database Systems (TODS), 2014; SIGMOD 2015, VLDB 2015, CIDR 2015, EDBT 2015, FAST 2015, HardBD 2015, CloudDP 2015, SIGMOD 2014, ICDE 2014, EDBT 2014, VLDB 2013, ASPLOS 2012, VLDB 2011, DAMON 2010, DAMON 2009