

# Manoussos-Gavriil (Manos) Athanassoulis

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## 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

09/2017 – now	<b>Research Associate at Harvard University</b>	Cambridge, MA, USA
01/2017 – 05/2017	<b>Visiting Lecturer at Tufts University</b>	Medford, MA, USA
09/2014 – 08/2017	<b>Postdoctoral Fellow at Harvard University</b>	Cambridge, MA, USA
10/2008 – 06/2014	<b>PhD Researcher at École Polytechnique Fédérale de Lausanne</b>	Lausanne, Switzerland
07/2011 – 10/2011	<b>Research Intern at IBM Watson Research Labs</b>	Hawthorne, NY, USA
10/2004 – 08/2008	<b>Researcher at University of Athens</b>	Athens, Greece

## HONORS & AWARDS

2018	“Best of VLDB 2017” selection with invitation to publish at VLDBJ
2018	“Distinguished PC Member” at SIGMOD
2017	“Best of SIGMOD 2017” 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 2010” 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

<b>Ph.D. in Computer Science</b> , February 2014	<b>Ecole Polytechnique Fédérale de Lausanne</b>
Thesis: “Solid-State Storage and Work Sharing for Efficient Scaleup Data Analytics”	
Advisor: Prof. Anastasia Ailamaki ( <a href="mailto:natassa@epfl.ch">natassa@epfl.ch</a> )	
<b>M.Sc. in Computer Systems Technology</b> , March 2008	<b>University of Athens, Greece</b>
Thesis: “Thread scheduling technique for avoiding page thrashing”	
Supervisor: Prof. Stathes Hadjiefthymiades ( <a href="mailto:shadj@di.uoa.gr">shadj@di.uoa.gr</a> )	
<b>B.Sc. in Informatics &amp; Telecommunications</b> , September 2005	<b>University of Athens, Greece</b>
Thesis: “A Multi-Criteria Message Forwarding Architecture for Wireless Sensor Networks”	
Supervisor: Prof. Stathes Hadjiefthymiades ( <a href="mailto:shadj@di.uoa.gr">shadj@di.uoa.gr</a> )	

**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**

1. N. Dayan, **M. Athanassoulis**, S. Idreos, “Optimal Bloom Filters and Adaptive Merging for LSM-Trees”, ACM Transactions on Database Systems (**TODS**), (to appear).
2. S. Idreos, K. Zoumpatianos, **M. Athanassoulis**, N. Dayan, B. Hentschel, M. Kester, D. Guo, L. Maas, W. Qin, A. Wasay, Y. Sun, “The Periodic Table of Data Structures”, **IEEE Data Engineering Bulletin**, Vol. 41(3), **2018**.
3. 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**. *Invited for publication at the Special Issue of VLDB Journal for VLDB 2017 Best Papers (one of top 5 papers)*.
4. 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** Int’l Conference on Management of Data, **2017**.
5. 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, **2017**. *Invited for publication at the Special Issue of TODS Journal for SIGMOD 2017 Best Papers (one of top 4 papers)*.
6. **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, **2016**. *Awarded the ACM Computationally Replicable label & Won the Most Reproducible Paper award*.
7. **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, **2016**.
8. **M. Athanassoulis**, S. Chen, P. Gibbons, A. Ailamaki, R. Stoica, “Online Updates on Data Warehouses via Judicious Use of Solid-State Storage”, ACM Transactions on Database Systems (**TODS**), Vol. 40(1), **2015**.
9. **M. Athanassoulis**, A. Ailamaki, “BF-Tree: Approximate Tree Indexing”, In Proc. of Very Large Databases Endowment (**PVLDB**), Vol. 7(14), **2014**.
10. 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**.
11. R. Johnson, I. Pandis, R. Stoica, **M. Athanassoulis**, and A. Ailamaki. “Scalability of write-ahead logging on multicore and multisoocket hardware”, The VLDB Journal (**VLDBJ**), Vol. 21(2), **2012**.
12. **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, **2011**.
13. **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**.
14. 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”, ACM **SIGMOD Record**, Vol. 39(4), **2010**.
15. 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**

16. **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**), **2016**.
17. A. Wasay, **M. Athanassoulis**, S. Idreos, “Queriosity: Automated Data Exploration”, In Proc. of the International Congress on **Big Data**, **2015**.

**Workshop and other Conference Papers**

18. 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**), **2016**.
19. 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**), **2015**.
  20. 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**), **2013**.
  21. **M. Athanassoulis**, B. Bhattacharjee, M. Canim, K. Ross, “Querying Persistent Graphs using Solid State Storage”, 4<sup>th</sup> Annual Non-Volatile Memories Workshop (**NVMW**), **2013**.
  22. **M. Athanassoulis**, B. Bhattacharjee, M. Canim, K. Ross, “Path Processing Using Solid State Storage”, In Proc. of the 3<sup>rd</sup> International Workshop on Accelerating Data Management Systems Using Modern Processor and Storage Architectures (**ADMS**), **2012**.
  23. 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**), **2009**.
  24. 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**), **2009**.
  25. **M. Athanassoulis**, I. Alagiannis and S. Hadjiefthymiades, “Energy Efficiency in Wireless Sensor Networks: A Utility-Based Architecture”, In Proc. of the 13<sup>th</sup> European Wireless (**EW**), **2007**.
  26. **M. Athanassoulis**, I. Alagiannis and S. Hadjiefthymiades, “A Multi-Criteria Message Forwarding Architecture for Wireless Sensor Networks”, In Proc. of the 10<sup>th</sup> Pan-Hellenic Conference on Informatics (**PCI**), **2005**.

#### Demo Papers

27. 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, **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

Program Committee Member/Reviewer	ACM SIGMOD 2018-2019, IEEE ICDE 2019 (demo track), EDBT 2019 (demo track), BigVis 2018-2019, XtremeCloud 2018, IEEE ICDE 2018, SSDBM 2018, HardBD 2018, AIMD 2018, VLDB 2017 (demo track), HDMS 2016-2018, IEEE ICDE PhD Workshop 2017, DB Reproducibility 2015-2017
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

**SELECTED RECENT TALKS AND LECTURES****2018**

University of Athens, University of Pittsburgh, Tufts University, Boston University,  
Northwestern University, Institute of Science & Technology – Austria,  
University of Warwick, Paris Descartes University, École Polytechnique, École Normale Supérieure

**2017**

North East DB Day, Guest Lecture in CS265 Harvard University

**2016**

Skoltech, Vision Track at EDBT 2016, Tutorial at ACM SIGMOD 2016,  
Guest Lecture in CS265 Harvard University

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