

Curriculum Vitae

Personal Information

First Name: Konstantinos (Kostas)

Surname: Morfonios

Occupation: Researcher, software developer

Date of Birth: April 6, 1978

Office Address: 400 Oracle Parkway, Redwood Shores, CA 94065, USA

E-Mail Address: konstantinos.morfonios@oracle.com , kmorfo@di.uoa.gr

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Research Interests

- Databases: OLAP, data warehousing, data mining
- Web: Advanced searching and social networks

Education

- 10/2008 – 09/2009: Postdoc researcher, IBM Research - Almaden, CA, USA
- 02/2008 – 09/2008: Postdoc researcher, Dept. of Informatics and Telecom., Univ. of Athens
- 09/2002 – 01/2007: PhD, Dept. of Informatics and Telecom., Univ. of Athens

❖ PhD Dissertation:

- ✓ *Title:* “Cube-Lifecycle Management and Applications”
 - ✓ *Advisor:* Prof. Yannis Ioannidis (yannis@di.uoa.gr)
 - ✓ *Grade:* Excellent
 - ✓ *Funding:* “Heraclitus” scholarship (11/2002 – 10/2005), co-financed within Op. Education by ESF (European Social Fund) and Greek National Resources
 - ✓ *Summary:* Most algorithms relevant to On-Line Analytical Processing (OLAP) involve aggregation, which can be extremely time-consuming if applied over large datasets. To overcome this drawback, scientists have proposed the precomputation and materialization of a large volume of aggregated data into a structure called data cube. Such construction and subsequent use of the data cube is very demanding itself in terms of computational and storage resources. This dissertation has studied this problem and has proposed comprehensive suites of scalable algorithms for efficient cube construction, storage, indexing, caching, query answering, and incremental updating. Extensive experimental evaluation has shown that the overall solution is viable even for very large datasets with arbitrary hierarchies. Finally, the dissertation studies the use of aggregate queries for feature selection and classification problems in data mining and proposes a disk-based, lazy, and asymptotically optimal solution that appears effective in a broad range of applications.
- 03/2001 – 04/2003: MSc, Advanced Information Systems, Dept. of Informatics and Telecom., Univ. of Athens
- ❖ Rank: 1st among those graduating during academic year 2002-2003
 - ❖ GPA: 9.6/10

- ❖ MSc Thesis:
 - ✓ *Title:* “Data-Cube Implementation: Efficient Methods and Algorithms”
 - ✓ *Advisor:* Prof. Yannis Ioannidis (yannis@di.uoa.gr)
 - ✓ *Grade:* 10/10
 - ✓ *Summary:* Implementation of the data cube is an important issue in OLAP, which has been the subject of a plethora of related publications. Naive methods that compute each node separately and store the result are impractical, since they have exponential time and space complexity. To overcome this drawback, a wide range of methods that provide efficient cube implementation (with respect to both computation and storage) has been proposed, which make use of relational, multidimensional, or graph-based data structures. This MSc thesis has focused on Relational-OLAP (ROLAP), has reviewed existing ROLAP methods that implement the data cube and has identified six orthogonal parameters/dimensions that characterize them. It has placed the existing techniques at the appropriate points within the problem space defined by these parameters and has identified several clusters that the techniques form with various interesting properties. A careful study of these properties has led to the identification of particularly effective values for the space parameters and has indicated the potential for devising new algorithms with better overall performance.
- 10/1996 – 11/2000: BSc, Dept. of Informatics and Telecom., Univ. of Athens
 - ❖ Rank: 1st among those graduating during academic year 1999-2000
 - ❖ GPA: 9.42/10
 - ❖ BSc Thesis:
 - ✓ *Title:* “Development of an Optical Character Recognition System for Handwritten Characters”
 - ✓ *Advisor:* Prof. Nikolaos Kalouptsidis (kalou@di.uoa.gr)
 - ✓ *Grade:* 10/10
 - ✓ *Summary:* This thesis has studied the problem of selecting proper invariant descriptors as feature vectors in combination with different classifiers in order to achieve accurate results in an Optical Character Recognition System (OCR) capable of recognizing handwritten text. Such a system has many interesting applications, e.g. automated reading of bank cheques, classification of mail, document digitization, hand-writing recognition, and author authentication. The study has taken into account descriptors based on Fourier and Wavelet transformations, as well as popular classifiers, including Bayes, Nearest Neighbors, and Neural Networks.

Professional Experience / Software Development

- 10/2009 – today: Staff member, Server Manageability Group, Oracle USA Inc.
- 10/2008 – 09/2009: Staff member, Database Group, IBM Research - Almaden.
- 02/2006 – 02/2007, 12/2007 – 09/2008: Staff member, “Health-e-Child” project, funded by the European Commission. Development of an integrated healthcare platform for European paediatrics, providing seamless integration of traditional and emerging sources of biomedical information.
- 02/2007 – 02/2008: Private (mandatory military service), Greek Army, Division of Informatics Research. Support of the Greek Army IT infrastructure and database administrator and programmer for its RDBMS (ORACLE).

- 04/2002 – 01/2004: Software designer and developer, inos Corporation (<http://www.inos-automation.com>). Development of software for automated quality control in the automobile industry based on image processing.
- 01/2001 – 06/2001: Staff member, “Volcano” project, funded by Unixfor Corporation (<http://www.unixfor.gr>). Design and development of an ETL tool for extraction, transformation, and loading of data from relational databases and text files into data warehouses.
- 03/2000 – 11/2000: Software designer and developer, ScheduleSoft Corporation (<http://www.schedulesoft.com>). Development of dynamic web pages for scheduling shifts in large companies under constraints.

Professional Activities

- Reviewer for ACM TODS 2008, Distributed and Parallel Databases 2009
- Reviewer for NLDB 2008 Doctoral Symposium
- External reviewer for EDBT 2006, KDD 2006, DOLAP 2006, EDBT 2008, VLDB 2008, IJBIDM 2009, ACM RECSYS 2009, CIKM Industrial Track 2009, HDMS 2010

Publications

International Journals

- [1] K. Morfonios and Y. Ioannidis. Revisiting the Cube Lifecycle in the Presence of Hierarchies. VLDB Journal 19(2), 2010, pp. 257-282.
- [2] K. Morfonios and Y. Ioannidis. Supporting the Data Cube Lifecycle: The Power of ROLAP. VLDB Journal 17(4), 2008, pp. 729-764.
- [3] K. Morfonios, S. Konakas, Y. Ioannidis, and N. Kotsis. ROLAP Implementations of the Data Cube. ACM Computing Surveys 39(4), 2007, pp. 12:1-12:53.

International Conferences

- [4] K. Morfonios, R. Colle, L. Galanis, S. Buranawanachoke, B. Dageville, K. Dias, and Y. Wang. Consistent Synchronization Schemes for Workload Replay. 37th Intl. Conf. on Very Large Databases (VLDB), Seattle, USA, Aug 29-Sep 3, 2011.
- [5] K. Morfonios. Database Implementation of a Model-Free Classifier. 11th Conf. on Advances in Databases and Information Systems (ADBIS), Varna, Bulgaria, Sep 29-Oct 3, 2007, pp. 83-97.
- [6] K. Morfonios and Y. Ioannidis. CURE for Cubes: Cubing Using a ROLAP Engine. 32nd Intl. Conf. on Very Large Databases (VLDB), Seoul, Korea, Sep 12-15, 2006, pp. 379-390.

Other Conferences

- [7] K. Morfonios and G. Koutrika. OLAP Cubes for Social Searches: Standing on the Shoulders of Giants? 11th International Workshop on the Web and Databases (WebDB 2008), in conjunction with ACM SIGMOD/PODS 2008, Vancouver, Canada, 13 June, 2008.

Book Chapters

- [8] K. Morfonios and Y. Ioannidis. Cube Implementations. Encyclopedia of Database Systems, Springer, 2009, pp. 539-544.
- [9] K. Morfonios and Y. Ioannidis. Star Schema. Encyclopedia of Database Systems, Springer, 2009, pp. 2779-2780.
- [10] K. Morfonios and Y. Ioannidis. Snowflake Schema. Encyclopedia of Database Systems, Springer, 2009, pp. 2665-2666.

National Conferences (versions of formal publications presented in Greek)

- [11] K. Morfonios and G. Koutrika. OLAP-Style Explorations of the Social Web. 7th Hellenic Data Management Symposium (HDMS), Heraklion, 28-29 July, 2008.
- [12] K. Morfonios and Y. Ioannidis. Efficient Usage of Relational Cubes. 6th Hellenic Data Management Symposium (HDMS), Athens, 5-6 July, 2007, pp. 30-41.
- [13] K. Morfonios and Y. Ioannidis. CURE for Cubes: Cubing Using a ROLAP Engine. 5th Hellenic Data Management Symposium (HDMS), Thessaloniki, 7-8 September, 2006, pp. 127-138.
- [14] K. Morfonios and Y. Ioannidis. LOCUS: Lazy Optimal Classification of Unlimited Scalability. 5th Hellenic Data Management Symposium (HDMS), Thessaloniki, 7-8 September, 2006, pp. 80-89.
- [15] K. Morfonios and Y. Ioannidis. Relational Methods for Efficient Analytical Processing. 4th Hellenic Data Management Symposium (HDMS), Athens, 25-26 August, 2005, pp. 66-77.
- [16] K. Morfonios. Foundations of Online Analytical Processing. 4th Hellenic Data Management Symposium (HDMS), Athens, 25-26 August, 2005, pp. 223-225.
- [17] K. Morfonios, S. Konakas, Y. Ioannidis, and N. Kotsis. ROLAP Implementations of the Data Cube: Efficient Methods and Algorithms. 3rd Hellenic Data Management Symposium (HDMS), Athens, 28-29 June, 2004, pp. 91-98.

Theses

- [18] K. Morfonios. Cube-Lifecycle Management and Applications. PhD Dissertation, Dept. of Informatics and Telecom., Univ. of Athens, 2007.
- [19] K. Morfonios. Data-Cube Implementation: Efficient Methods and Algorithms. MSc Thesis, Dept. of Informatics and Telecom., Univ. of Athens, 2003. (With S. Konakas.)
- [20] K. Morfonios. Development of an Optical Character Recognition System for Handwritten Characters. BSc Thesis, Dept. of Informatics and Telecom., Univ. of Athens, 2000. (With A. Charissi.)

Supervising Assistant

- 03/2008 – 09/2008: BSc thesis of Chryssa Tzouma, subject “Disk-Based Classification Algorithms”, supervisor Prof. Yannis Ioannidis
- 10/2005 - 01/2007: BSc thesis of D. Imeros and T. Aggelopoulos, subject “Data-Cube Visualization”, supervisor Prof. Yannis Ioannidis

Teaching Assistant

- 02/2005 - 06/2005, 02/2006 - 07/2006: Undergraduate course “Software Development”, Dept. of Informatics and Telecom., Univ. of Athens, instructor Prof. Yannis Ioannidis
- 10/2004 - 01/2005: Undergraduate course “Design and Use of Databases”, Dept. of Informatics and Telecom., Univ. of Athens, instructor Prof. Yannis Ioannidis
- 02/2004 - 07/2004: Undergraduate course “Implementation of Database Systems”, Dept. of Informatics and Telecom., Univ. of Athens, instructor Prof. Yannis Ioannidis
- 10/2002 - 02/2003: Undergraduate course “Human Computer Interaction”, Dept. of Informatics and Telecom., Univ. of Athens, instructor Prof. Yannis Ioannidis
- 02/2002 - 06/2002: Undergraduate course “Operating Systems I”, Dept. of Informatics and Telecom., Univ. of Athens, instructor Prof. Alex Delis (ad@di.uoa.gr)
- 10/2001 - 01/2002: Undergraduate course “Introduction to Programming”, Dept. of Informatics and Telecom., Univ. of Athens, instructor Prof. Nikolaos Misirlis (nmis@di.uoa.gr)

Other Teaching Experience

- 02/2005 - 06/2005: Courses “Database Systems”, “SQL”, and “MS-Access”, Computer Programming School of the Greek Army
- 03/2004: Course “Visual Basic”, seminar organized by the Bank of Greece

Foreign Languages

- Greek: native
- English: fluent (Certificate of Proficiency in English, Univ. of Cambridge, Certificate of Proficiency in English, Univ. of Michigan)
- German: good (Zertifikat Mittelstufe)
- French: moderate (6-year course in Greek high school)

Computer Related Skills

- Programming Languages: C, C++, Java, Visual Basic, Pascal
- Database technologies: E/R and relational design, SQL query language
- Database Management Systems: ORACLE, SQL-Server, MySQL
- Web Design: HTML, JavaScript, VBScript, CSS, JSP, ASP, PHP
- Other: MATLAB

Honors / Awards

- 05/2004: Outstanding Performance Award, Dept. of Informatics and Telecom., Univ. of Athens for ranking first in the direction of Advanced Information Systems, academic year 2002-2003, GPA 9.6/10
- 2000 (BSc) and 2003 (MSc): Recitation of graduating oath on behalf of all students during the graduation ceremony, due to top ranking
- 1996 – 2000: Scholarship from the National Scholarships Foundation, due to outstanding performance, academic years 1996-1997, 1997-1998, 1998-1999, and 1999-2000

- 1993: Honored by the Hellenic Mathematical Society, due to excellent performance in a student contest

Extracurricular Activities

- Sports
- Traveling

References

- Available upon request