

Michalis Petropoulos

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RESEARCH INTERESTS

Databases: user-oriented and agent-oriented web-based interfaces; semistructured and XML data; publishing and integration scenarios; rewriting queries using limited interfaces; schema integration.

EDUCATION

Ph.D., Computer Science <i>University of California, San Diego</i>	Dec 2005
Thesis: Exporting and Utilizing Database Interfaces on the Web	
Advisor: Yannis Papakonstantinou	
M.S., Computer Science <i>University of California, San Diego</i>	Jun 2000
Diploma, Computer Engineering <i>Technical University of Crete, Chania, Greece</i>	Aug 1998

WORK EXPERIENCE

University at Buffalo, SUNY, Buffalo, NY <i>Assistant Professor</i> , Computer Science & Engineering Department	Jan 2006 – present
app2you, Inc., La Jolla, CA <i>Consultant</i>	Jan – Aug 2007
app2you.com is a hosted web service enabling users to sketch the pages of their database-driven application and the flow of information across pages. Contributed to the design and implementation of algorithms that automatically infer the database design and logic behind the web pages.	
University of California, San Diego, La Jolla, CA <i>Research Assistant</i> , Computer Science & Engineering Department Under supervision of <i>Prof. Yannis Papakonstantinou</i>	Sep 1999 – Dec 2005
University of California, San Diego, La Jolla, CA <i>Consultant</i> , Computer Science & Engineering Department Under supervision of <i>Prof. Alex Orlaioglu</i> and <i>Prof. Yannis Papakonstantinou</i>	Jan – Dec 2004
Designed and implemented a web-based review system for the Graduate Admissions Committee. The project involves the integration of three relational databases created from three independent campus entities, implements a reviewing workflow for the committee members and applicants, and offers administration functionality to committee chairs and staff members.	
IBM Almaden Research Center, San Jose, CA <i>Research Intern</i> , Advanced Database Services Group Under supervision of <i>Dr. Jussi Myllymaki</i>	Jun - Sept 2004
Implemented two instance-based schema matching heuristics. Contributed to the development of a library that implements various graph algorithms that the proposed heuristics depend on.	
Microsoft Research, Redmond, WA <i>Research Intern</i> , Database Group Under supervision of <i>Dr. Phil Bernstein</i>	Jul – Nov 2003
Designed and implemented Protoplasm: an industrial-strength schema matching platform that focuses on extensibility and customizability. Implemented several linguistic and structural matching operators.	

Bell Laboratories, Murray Hill, NJ	Jun - Sep 2002
Research Intern, Network Data and Services Research Department	
Under supervision of <i>Dr. Juliana Freire</i> and <i>Dr. Prasan Roy</i>	
Worked on relaxation techniques for queries against semi-structured data based on schema statistics.	
Enosys Software Inc., San Diego, CA	Jan 2000 – Sep 2001
Senior Software Engineer	
Under supervision of <i>Clifton McLellan (Director of Engineering)</i>	
Led a team of engineers that designed and implemented the Application Builder component of the <i>Enosys Design Suite</i> . Application Builder is a tool for rapidly developing custom web interfaces for data integration applications, and features easy-to-use forms, summarization and navigation tables, and templates to assist in query and interface building.	
San Diego Supercomputer Center, San Diego, CA	Jun 1999 - Sep 1999
Research Intern	
Under supervision of <i>Dr. Chaitan Baru</i>	
Designed and implemented heuristics for automatic specification of XML Schemas out of relational schemas for the purpose of visual display. The heuristics converted relational schema graphs into XML Schema trees in a way the user conceives as clearly as possible the content and semantics of the relational source. This work was part of the Mediation of Information using XML (MIX) project.	
Multimedia Systems Center AE, Chania, Greece	Sep 1995 – Aug 1998
Software Engineer	
Managed a desktop publishing team, which printed a 100-page tourist guide titled "The Atlas of Crete" using software for map creation, image processing and page layout. The tourist guide was circulated in 20,000 copies and six languages.	

TEACHING EXPERIENCE

Instructor – University at Buffalo, SUNY

- Data Integration (CSE 636) – Fall 08, Fall 06, Spring 06
- Database Systems (CSE562) – Spring 10, Spring 09, Fall 07
- Web Data Engineering (CSE 510) – Fall 09
- Database Seminar (CSE718) – Spring 10, Fall 08, Spring 08, Spring 07

PATENTS

1. Flexible Format Query Processing System for Web Browsers

Michalis Petropoulos, Vasilis Vassalos, Yannis Papakonstantinou
 United States Patent Number 7,203,678 (April 10, 2007)
 Assigned to BEA Systems, Inc.

HONORS & AWARDS

- **Best Paper Award Honorable Mention**, ACM International Conference on Management of Data (SIGMOD) for "Interactive Query Formulation over Web Service-Accessed Sources", 2006
- **Best Interdisciplinary Paper Award**, ACM International Conference on Information and Knowledge Management (CIKM) for "FACeTOR: Cost-Driven Exploration of Faceted Query Results", 2010

GRANT SUPPORT

- **ISTARE: Intelligent Spatio-Temporal Activity Reasoning Engine**
 Jason J. Corso (PI), Raymond Fu, Michalis Petropoulos, Venkat Krobie, Werner Ceusters (co-PIs)
 Defense Advanced Research Projects Agency (DARPA)
 6/22/2010-6/21/2013: **\$2,200,000**
- **Extending a Preservation Archive through a Social Network**
 Michalis Petropoulos (PI), Jeff Good (co-PI)

SOFTWARE

- **CLIDE:** <http://www.clide.info/>
Interactively formulating feasible queries over data services using query rewriting-based systems
- **BioNav:** <http://db.cse.buffalo.edu/bionav/>
Effective navigation on query results of biomedical databases
- **FACeTOR:** <http://facetor.com/>
Cost-driven exploration of faceted query results
- **QURSED:** <http://db.cse.buffalo.edu/qursed/> (under development)
Dynamic and declarative query forms and reports for XML data

PUBLICATIONS

1. **FACeTOR: Cost-Driven Exploration of Faceted Query Results**
Abhijith Kashyap, Vagelis Hristidis, Michalis Petropoulos
ACM Conference on Information and Knowledge Management (CIKM), 2010
Conference Article 127:945 (13%)
2. **Effective Navigation of Query Results Based on Concept Hierarchies**
Abhijith Kashyap, Vagelis Hristidis, Michalis Petropoulos, Sotiria Tavoulari
IEEE Transactions on Knowledge and Data Engineering (TKDE), to appear
Journal Article
3. **A Data-Centric Approach to Insider Attack Detection in Database Systems**
Sunu Mathew, Michalis Petropoulos, Hung Q. Ngo, Shambhu Upadhyaya
International Symposium on Recent Advances in Intrusion Detection (RAID), 2010
Symposium Article
4. **BioNav: Effective Navigation on Query Results of Biomedical Databases**
Abhijith Kashyap, Vagelis Hristidis, Michalis Petropoulos, Sotiria Tavoulari
IEEE International Conference on Data Engineering (ICDE), 2009
Conference Article 150:554 (27%)
5. **Exploring Biomedical Databases with BioNav**
Abhijith Kashyap, Vagelis Hristidis, Michalis Petropoulos, Sotiria Tavoulari
ACM International Conference on Management of Data (SIGMOD), 2009
Demonstration Article 32:86 (37%)
6. **Do-It-Yourself Custom Forms-Driven Workflow Applications**
Keith Kowalczykowski, Kian Win Ong, Alin Deutsch, Yannis Papakonstantinou, Kevin Zhao, Michalis Petropoulos
Conference on Innovative Data Systems Research (CIDR), 2009
Conference Article
7. **Exporting and Interactively Querying Web Service-Accessed Sources: The CLIDE System**
Michalis Petropoulos, Alin Deutsch, Yannis Papakonstantinou, Yannis Katsis
ACM Transactions on Database Systems (TODS), 32(4), 2007
Journal Article
8. **CLIDE: Interactive Query Formulation for Service Oriented Architectures**
Michalis Petropoulos, Alin Deutsch, Yannis Papakonstantinou
ACM International Conference on Management of Data (SIGMOD), 2007
Demonstration Article 36:107 (34%)
9. **Interactive Query Formulation over Web Service-Accessed Sources**
Michalis Petropoulos, Alin Deutsch, Yannis Papakonstantinou
ACM International Conference on Management of Data (SIGMOD), 2006
Conference Article 58:446 (13%)
10. **Graphical Query Interfaces for Semistructured Data: The QURSED System**
Michalis Petropoulos, Yannis Papakonstantinou, Vasilis Vassalos
ACM Transactions on Internet Technology (TOIT), 5(2), 2005
Journal Article
11. **Industrial-Strength Schema Matching**
Philip A. Bernstein, Sergey Melnik, Michalis Petropoulos, Christoph Quix
ACM SIGMOD Record, 33(4), 2004
Journal Article

12. Query Set Specification Language (QSSL) Michalis Petropoulos, Alin Deutsch, Yannis Papakonstantinou Sixth International Workshop on the Web and Databases (WebDB), 2003	Workshop Article 17:67 (25%)
13. Online Querying of Heterogeneous Distributed Spatial Data on a Grid Ilya Zaslavsky, Ashraf Memon, Michalis Petropoulos, Chaitan Baru Third International Symposium on Digital Earth, 2003	Symposium Article
14. Generating Query Forms and Reports for Semistructured Data: The QURSED Editor Yannis Papakonstantinou, Michalis Petropoulos, Vasilis Vassalos Ninth Panhellenic Conference on Informatics (PCI), 2003	Conference Article
15. QURSED: Querying and Reporting SEMistructured Data Yannis Papakonstantinou, Michalis Petropoulos, Vasilis Vassalos ACM International Conference on Management of Data (SIGMOD), 2002	Conference Article 42:239 (17%)
16. Semantic Caching of XML Databases Vagelis Hristidis, Michalis Petropoulos Fifth International Workshop on the Web and Databases (WebDB), 2002	Workshop Article 17:68 (25%)
17. Building XML Query Forms and Reports with XQForms Michalis Petropoulos, Yannis Papakonstantinou, Vasilis Vassalos Computer Networks Journal, Special Issue on XML, Elsevier Science, 39(5), 2002	Journal Article
18. XML Query Forms (XQForms): Declarative Specification of XML Query Interfaces Michalis Petropoulos, Vasilis Vassalos, Yannis Papakonstantinou Tenth International World Wide Web Conference (WWW10), 2001	Conference Article 78:391 (20%)

PROFESSIONAL ACTIVITIES

NSF Panel Review Member

- 2007, 2008

Workshop Co-Chair (with Alexandros Labrinidis):

- WebDB 2009 - International Workshop on the Web and Databases (SIGMOD Workshop)
<http://webdb09.cse.buffalo.edu/>

Tutorials Chair:

- ICWE 2007 - International Conference on Web Engineering

Local Arrangements Chair:

- SIGMOD 2003 - ACM International Conference on Management of Data

Program Committee Member:

- ICDE 2011 - International Conference on Data Engineering
- WWW 2010 - International World Wide Web Conference
- EDBT 2010 - International Conference on Extending Database Technology
- NTII 2010 - International Workshop on New Trends in Information Integration (ICDE Workshop)
- WebDB 2008, 2006 - International Workshop on the Web and Databases (SIGMOD Workshop)
- EDBT 2008 Demonstrations - International Conference on Extending Database Technology
- ICWE 2007 - International Conference on Web Engineering
- ISDIKS 2007 - International Symposium on Data, Information & Knowledge Spectrum
- CIKM 2006 - Conference on Information and Knowledge Management
- WWW 2002 Posters - International World Wide Web Conference

Reviewer:

- ACM Computing Surveys
- IEEE Transactions on Knowledge and Data Engineering (TKDE)
- Elsevier Journal of Data & Knowledge Engineering (DKE)

Member:

- Association of Computing Machinery (ACM) – since 2002

- ACM Special Interest Group on Management of Data (SIGMOD) – since 2002
- W3C XForms Working Group (2000)

RESEARCH SUPERVISION

Academic Advisees:

- Abhijith Kashyap – PhD (since 09/2006)
- Daniel Schlegel – PhD (since 09/2009)

PhD Committees:

- Denis Mindolin (advisor: Jan Chomicki)
- Xi Zhang (advisor: Jan Chomicki)
- Slawomir Staworko (advisor: Jan Chomicki)

PRESENTATIONS

- **Interactive Query Formulation over Web Service-Accessed Sources**
University of Pennsylvania, Computer Science Dept., Philadelphia PA, 2008
ACM SIGMOD Conference, Chicago IL, 2006
Athens University of Economics and Business, Computer Science Dept., Athens, Greece, 2006
Foundation for Research and Technology – Hellas (FORTH), Crete Greece, 2006
- **Exporting and Utilizing Database Interfaces on the Web**
University at Buffalo, SUNY, Department of Computer Science and Engineering, 2005
University of Illinois at Urbana-Champaign, Department of Computer Science, 2005
Purdue University, Department of Computer Science, 2005
Texas A&M University, Department of Computer Science and Engineering, 2005
University of Houston, Department of Computer Science, 2005
- **Web Services Interfaces**
Microsoft Research, Database Group, Redmond WA, 2003
Gemo Group (INRIA) - UCSD Database Group Workshop (GEMSAD), San Diego CA, 2003
- **Query Set Specification Language (QSSL)**
International Workshop on the Web and Databases (WebDB), San Diego CA, 2003
- **QURSED: QUerying and Reporting SEMistructured Data**
ACM SIGMOD Conference, Madison WI, 2002
University of Pennsylvania, Department of Computer and Information Science, 2002
- **XML Query Forms (XQForms): Declarative Specification of XML Query Interfaces**
Tenth International World Wide Web Conference (WWW10), Hong Kong S.A.R., 2001
- **Relational Wrapper for Navigation-Driven Lazy Mediator**
San Diego Supercomputer Center, La Jolla CA, 1999