

Robert Gwadera

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Education

- 2005, **Ph.D.** in Computer Science, Department of Computer Sciences, Purdue University, West Lafayette Indiana, USA. Title of the thesis *Reliable Identification of Significant Sets of Episodes in Event Sequences*.
- 2003, **M.S.** in Computer Science, Department of Computer Sciences, Purdue University, West Lafayette Indiana, USA.
- 1995, **M.S.** in Electrical and Computer Engineering, Department of Electronics, Telecommunication and Informatics, Technical University of Gdansk, Gdansk Poland.

Research interests

- Data mining, text mining, machine learning, information retrieval and databases.

Professional experience

- 2007-present, Hasler Foundation Researcher, Faculty of Informatics, Universita della Svizzera Italiana, Switzerland. Working on multi-stream topic detection and tracking.
- 2005-2007, Postdoctoral Researcher, Department of Computer Sciences, Helsinki University of Technology and University of Helsinki, Finland. Worked on sequence segmentation algorithms.
- 1999-2005, Research Assistant, Department of Computer Sciences, Center for Education and Research in Information Assurance and Security (CERIAS), Purdue University, West Lafayette Indiana, USA. Worked on algorithms for discovering significant patterns in data streams.
- 1996-98, Research Assistant, Department of Electronics, Telecommunication and Informatics, Technical University of Gdansk, Gdansk Poland. Worked on data compression algorithms.

Other experience

- 2008, Teaching Assistant, Faculty of Informatics, Universita della Svizzera Italiana. Taught Perl Programming Language. Supervised lab for Intelligent Information Access.
- 2005, Teaching Assistant, Department of Computer Sciences, Helsinki University of Technology. Taught Data Mining.
- 1999-2005, Teaching Assistant, Department of Computer Sciences, Purdue University. Taught Algorithms, Foundations of Computer Science, Randomized Algorithms. Supervised lab for Object Oriented Data Bases, Networking and Data Mining.
- 1996-98, Teaching Assistant, Department of Electronics, Telecommunication and Informatics, Technical University of Gdansk. Taught Stochastic Methods. Supervised lab for Data Compression, Computer Graphics.

Programming skills

- C++, C++ Standard Library, Assembler. Built: *Xinu* operating system, a database management system (DBMS), a Unix shell, a *Xinu* IP router and a wide area network emulator.
- Lexical analyzer generators: Lex and Flex. Parser generators: Yacc and Bison.
- Java. Built a compiler for Tiger Language.
- IP networking implemented protocols: IP, TCP, UDP, ARP, BOOTP, DHCP, ICMP, RIP, HTTP, NAT.
- Parallel and distributed programming platforms: PVM, MPI, CORBA, Unix/Linux threads and sockets.
- SDK Windows, Object Oriented Windows Programming (MFC/Borland).
- Python, Perl, MySQL, Prolog, CLIPS.

Publications

- R. Gwadera and F. Crestani, Mining News Streams using Cross-Stream Sequential Patterns, *9th International conference on Adaptivity, Personalization and Fusion of Heterogeneous Information*, (RIAO 2010), Paris, France, April, 2010.
- R. Gwadera and F. Crestani, Ranking Sequential Patterns with Respect to Significance, *The 14th Pacific-Asia Conference on Knowledge Discovery and Data Mining*, (PAKDD-10), Hyderabad, India, June, 2010.
- R. Gwadera and F. Crestani, Mining and Ranking Streams of News Stories using Cross-Stream Sequential Patterns, *The 18th ACM Conference on Information and Knowledge Management*, (CIKM-09), 1709-1712, Hong Kong, November, 2009.
- M. Carman, M. Baillie, R. Gwadera and F. Crestani, A Statistical Comparison of Tag and Query Logs, *The 32nd Annual ACM SIGIR Conference* (SIGIR-09), 123-130, Boston, July, 2009.
- R. Gwadera and F. Crestani, Discovering Significant Patterns in Multi-Stream Sequences, *2008 IEEE International Conference on Data Mining* (ICDM-08), 827-832, Pisa, Italy, December 2008.
- R. Gwadera, A. Gionis and H. Mannila, Optimal Segmentation using Tree Models, *Knowledge and Information Systems* (KAIS), Volume 15, Number 3, Pages: 259-283, June 2008.
- R. Gwadera, J. Toivola and J. Hollmen, Segmenting Multi-Attribute Sequences using Dynamic Bayesian Networks, *The 1st Workshop on Data Mining of Uncertain Data* (ICDM-07), 465-470, Omaha, Nebraska, October 2007.
- R. Gwadera, A. Gionis and H. Mannila, Optimal Segmentation using Tree Models, *2006 IEEE International Conference on Data Mining* (ICDM-06), 244-253, Hong Kong, December 2006.
- R. Gwadera, M. Atallah and W. Szpankowski, Reliable Detection of Episodes in Event Sequences, *Knowledge and Information Systems* (KAIS), Volume 7, Number 4, Pages: 415-437, May 2005.
- R. Gwadera, M. Atallah and W. Szpankowski, Markov Models for Identification of Significant Episodes, *2005 SIAM International Conference on Data Mining* (SDM-05), 404-414, Newport Beach, California, April 2005.
- M. Atallah, R. Gwadera and W. Szpankowski, Detection of Significant Sets of Episodes in Event Sequences, *2004 IEEE International Conference on Data Mining* (ICDM-04), 3-10, Brighton, UK, November 2004.
- A. Hammad, M. F. Mokbel, M. H. Ali, W. G. Aref, A C. Catlin, A K. Elmagarmid, M. Eltabakh, M. G. Elfeky, T. M. Ghanem, R. Gwadera, I. F. Ilyas, M. Marzouk and X. Xiong, *Nile: A Query Processing Engine for Data Streams*, *Proceedings of the International Conference of Data Engineering* (ICDE-04), 851, Boston, March 2004.

- R. Gwadera, M. Atallah and W. Szpankowski, Reliable Detection of Episodes in Event Sequences, *2003 IEEE International Conference on Data Mining (ICDM-03)*, 67-74, Melbourne, Florida, November 2003.
- R. Gwadera, T. Kiczkowiak and Z. Ociepa, An Algorithm for a Conversion of a Sequential Logic to Combinatorial Logic Control System, *Hydraulika i Pneumatyka*, Nr: 2/1997, s. 7-9 (in Polish).
- R. Gwadera, J. Lebiedz and W. Malina, Quadtree Image Compression, *Sztuczna Inteligencja*, Siedlce, Warszawa 1997, Poland (in Polish).

Published project reports

- Universita della Svizzera Italiana at Text Retrieval Conference (TREC) 2009 Blog Track, Universita della Svizzera Italiana, 2009.
- Universita della Svizzera Italiana at Text Retrieval Conference (TREC) 2008 Blog Track, Universita della Svizzera Italiana, 2008.

Submitted

- R. Gwadera, Sliding Window Ad Hoc Query Answering with Probabilistic Guarantees.

Talks

- *Mining Sequential Data: Segmentation and Significant Patterns*, Computer Science Department, University College London, Adastral Park, Ipswich, UK.
- *Reliable Detection of Significant Sets of Episodes*, Computer Science Department, University of Helsinki, Helsinki, Finland.
- *Detection of Significant Patterns in Data Streams*, Xerox Innovation Group, Webster NY, USA.

Award

- ICDM 2004 Student Travel Award provided by IBM Research.

Research funding

- *Multi-Stream Topic Detection and Tracking*, Hasler Foundation, 98000 CHF.

Service to the community

- Program Committee member: ICDM-06, ICDM-07, DUNE 2007, ECML PKDD 2009.
- Reviewer: KAIS, TKDE.

Languages

- Polish, English, German, Russian and basic Italian