

Hector Gonzalez

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RESEARCH INTERESTS

I have a broad interest in the areas of data mining, data warehousing, and database systems. I have worked on warehousing, cleaning, and mining of large moving object datasets. I am interested in the problems of mining patterns of human and vehicle movements, and in mining the patterns of interaction of large networks of everyday objects communicating through RFID and sensor network technologies.

EDUCATION

2004 – present	University of Illinois at Urbana-Champaign Ph.D. in Computer Science Advisor: Prof. Jiawei Han.
2002 – 2004	University of Illinois at Urbana-Champaign M.S. in Computer Science Master Thesis: FQ-Tree an index structure for very high dimensional data. Advisor: Prof. Jiawei Han.
1997 – 1999	Harvard University graduate school of business administration M.B.A. First and second year honors. Graduated with distinction.
1990 – 1995	Universidad Eafit B.S. in Computer Science. Graduated first in the computer science department.

RESEARCH EXPERIENCE

2003 – present	University of Illinois at Urbana-Champaign Research Assistant, Advisor: Prof. Jiawei Han. I have been conducting research on: Warehousing of large moving object datasets, Mining of probabilistic workflows from movement data, Cleaning of large RFID datasets, Mining of traffic datasets for route recommendations and anomaly detection.
2004	IDIS Project. Worked on keyword search over relational databases in the context of an information integration system for the department of computer science web pages.

TEACHING EXPERIENCE

Spring 2004	Data Mining: Principles and Algorithms. Graduate level (cs497 and cs512), UIUC (Prof. Jiawei Han).
Spring 2005	
Spring 2006	Graded assignments, and answered student questions. Taught lectures when the instructor traveled.
Spring 2007	
Fall 2004	Data Mining: Principles and Algorithms. Undergraduate level (cs412), UIUC (Prof. Jiawei Han).
Fall 2005	
Fall 2006	Designed programming assignments, wrote framework and tutorial to integrate data mining algorithms into SQL Server, graded assignments and exams, answered questions for on-campus and online students. Taught lectures when the instructor traveled.
Fall 2007	

1996 Universidad San Buenaventura. Lecturer for the class: Compiler Design. Lectured to a group of 50 students, designed programming assignments, lecture plan, and exams.

WORK EXPERIENCE

1999 – 2002 Question Exchange. Founder and CEO. Launched first web based technical support marketplace. Raised capital, hired employees, and designed business plan. Successfully sold company to VA Linux. Developed state of the art technological infrastructure. Grew site to be the largest open source helpdesk.

1995 – 1997 HAGO Soft. Launched software development company focused on systems integration for government and private companies. Signed Corona holdings (fifth largest economic group in Colombia) as a customer. Awarded government contract to develop software to manage gubernatorial elections in the Antioquia region (4 million people).

1995 MECOSOFT. Worked as a developer porting Quicken to Latin America.

HONORS & AWARDS

2007 Outstanding Teaching Assistant Award. Dept. Comp. Science, UIUC.

2006 ICDE'06 Best Student Paper Award: "Warehousing and analyzing massive RFID data sets".

2004 Excellent Teaching Assistant Award. Dept. Comp. Science, UIUC.

1999 Harvard Business School Loeb Award for excellent academic performance in finance courses.

1999 Harvard Business School Second Year Honors

1998 Harvard Business School First Year Honors

1995 Selected by Portafolio in top-5 graduating students in Colombia. Graduated first in class Universidad Eafit.

PUBLICATIONS

1. **Hector Gonzalez**, Jiawei Han, Xiaolei Li, Margaret Myslinska, John Paul Sondag. Adaptive Fastest Path Computation on a Road Network: A Traffic Mining Approach, in Proc. 2007 Int. Conf. on Very Large Databases (**VLDB'07**), Vienna, Austria, September 2007. pp 794-805.
2. Xiaolei Li, Jiawei Han, Jae-Gil Lee, **Hector Gonzalez**. Traffic Density-based Discovery of Hot Routes in Road Networks. Proceedings of the 10th International Symposium on Spatial and Temporal Databases (**SSTD 2007**), Boston, MA, July 2007. pp 441-459.
3. **Hector Gonzalez**, Jiawei Han, Xuehua Shen. Cost-conscious Cleaning of Massive RFID Data Sets, in Proc. 2007 Int. Conf. on Data Engineering (**ICDE'07**), Istanbul, Turkey, April 2007. pp 1268-1272.
4. Xiaolei Li, Jiawei Han, Sangkyum Kim, **Hector Gonzalez**. ROAM: Rule- and Motif-Based Anomaly Detection in Massive Moving Object Data Sets, in Proc. 2007 SIAM Int. Conf. on Data Mining (**SDM'07**), Minneapolis, MN, April 2007.
5. **Hector Gonzalez**, Jiawei Han, Xiaolei Li. Mining Compressed Commodity Workflows From Massive RFID Data Sets, in Proc. 2006. Conf. on Information and Knowledge Management (**CIKM'06**), Arlington, Virginia, November 2006. pp 162-171.
6. Jiawei Han, **Hector Gonzalez**, Xiaolei Li, Diego Klabjan. Warehousing and Mining Massive RFID Data Sets. (an invited paper), in Proc. 2006. Int. Conf. on Advanced Data Mining and Applications (**ADMA'06**), Xi' An, China, August 2006. pp 1-18.

- (Lecture Notes in Computer Science, Vol 4093, Springer Berlin/Heidelberg, 2006).
7. **Hector Gonzalez**, Jiawei Han, Xiaolei Li. FlowCube: Constructing RFID FlowCubes for Multi-Dimensional Analysis of Commodity Flows, in Proc. 2006. Int. Conf. on Very Large Data Bases (**VLDB'06**), Seoul, Korea, September 2006. pp 834-845.
 8. **Hector Gonzalez**, Jiawei Han, Xiaolei Li, and Diego Klabjan. Warehousing and Analysis of Massive RFID Data Sets, in Proc. 2006 Int. Conf. on Data Engineering (**ICDE'06**), Atlanta, Georgia, April 2006. (**Best Student Paper Award**).
 9. Xiaolei Li, Jiawei Han, and **Hector Gonzalez**. High-Dimensional OLAP: A Minimal Cubing Approach, in Proc. 2004 Int. Conf. on Very Large Data Bases (**VLDB'04**), Toronto, Canada, Aug. 2004. pp 528-539.
 10. **Hector Gonzalez**, and Jiawei Han. Warehousing and Analysis of Massive RFID Datasets. To appear in: The Internet of Things: From RFID to the Next Generation Pervasive Networked Systems. Edited by Yan Lu, Yan Zhang, Laurence T. Yang, and Huansheng Ning. Auerbach Publications.
 11. Jiawei Han and **Hector Gonzalez**, Modeling Massive RFID Datasets: A Movement-Graph-Based Approach, (invited book chapter, in preparation), Alfredo Cuzzocrea et al, (eds), Intelligent Techniques for Warehousing and Mining Sensor Network Data, IGI Global, 2008.

Publications in Submission

1. **Hector Gonzalez**, Jiawei Han, Hong Cheng. Movement Graphs: Gateway based Partitioning of RFID Datasets. Submitted to: IEEE Transactions on Knowledge and Data Engineering (TKDE).
2. Title omitted due to double blind reviews. SIGMOD'08.

Masters Thesis

1. FQ-Tree an index structure for very high dimensional data", University of Illinois at Urbana-Champaign, 2003.

PROFESSIONAL SERVICES

Program Committee member for International Workshop on RFID Technology.
Served as external reviewer for SIGMOD, VLDB, and KDD.

REFERENCES

Professor Jiawei Han

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