

**DATABASE TECHNOLOGIES AND APPLICATIONS
RESEARCH GROUP**

Faculty of Computer Science and Info. Tech. UPM



Annual Report 2016

Prepared by: [AP Dr Lilly Suriani Affendey]

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EXECUTIVE SUMMARY

Introduction

The Database Technologies and Applications Research Group at the Faculty of Computer Science and Information Technology, UPM deliberates on both fundamental research and system design in the area of database and data management techniques. The group research projects are supported by research grants which are principally conducted by the members as well as postgraduate research students (PhD and Master). Main interests of the group include the following leading sub-areas: semantic web; database (centralised, distributed, parallel, mobile, XML, multimedia, bio-medical); big data and data analytics; data quality; data warehouse; query formulation, processing and optimisation; integrity, integration, privacy and security in databases; applications, models and frameworks for e-commerce, e-governance; on scalable data analysis; data models and languages; management of web and heterogeneous data; domain specific data management; and emerging database technologies. The research could provide quality management of life through secured data, fast and accurate decision making, and advanced data quality.

Members

Name : Assoc. Prof. Dr. Lilly Suriani Affendey (Leader)

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Name : Prof. Dr. Hamidah Ibrahim

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Name : Assoc. Prof. Dr. Fatimah Sidi

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Tel : 603-8947 1796

Name : Dr. Maslina Zolkepli

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Tel : 603-8947 1747

Students

In 2016, in total DBTA members are supervising **28** number of postgraduate students with **7** students pursuing Master of Computer Science (by research) and **21** are pursuing PhD students

Lecturer (as Main Supervisor)	MSc students	PhD students
Assoc. Prof. Dr. Lilly Suriani Affendey		4
Prof. Hamidah Ibrahim	1	11
Assoc. Prof. Dr. Fatimah Sidi	3	3
Dr. Iskandar Ishak	3	2
Dr. Maslina Zolkepli		1

Student List (PhD)

Student name	Research Title	Main Supervisor
Aziah Asmawi Fereshteh	Model-Based Validation And Severity-Aware Trust-Based Access Control For Secure Xml Database Centric Web Services	Assoc. Prof. Dr. Lilly Suriani Affendey
Falah Chamesemani	Enhanced Region-Based Surveillance Video Indexing And Retrieval Framework Using Video Abstraction	
Amnah Osman Elaheh	Ontology Matching Using Background Knowledge	
Mahraban Jihad	MapReduce Indexing Strategies	
Normala Che Embi	Deception Detection Model based on Support Vector Machine on News Portal for Improving Data Veracity	Dr. Iskandar Ishak
Yunus Farvej Faniband	Improving Data Consistency for Accessing Large Data Object in Mobile Backed as a Service (MBaaS) framework	
Izham Mohd Jaya	Improving Data Timeliness, Accuracy, Consistency and Completeness Using Ontology to Achieve High Quality Data in CRM	Assoc. Prof. Dr. Fatimah Sidi
Hasan Ganny Hanif Francis	A New Readiness Model to Enhance The Assessment of Customer Business Value	

Student name	Research Title	Main Supervisor
	Using Big Data Analytics	
Sharmila Mat Yusof	An Enhanced Multidimensional Model for Dw Based on Changing Requirements and Data Sources to Enhance the Quality of Logical Schema	
Sayer Reasheed S Alshammar		Dr. Maslina Zolkepli
Ammar Fuad O Arbaeen	Ontology Matching	Prof. Dr. Hamidah Ibrahim
Asghar Darvishy	Context Aware Recommender System with User Preferences and Learning Behaviour	
Ghazaleh Babanejad Dehaki	Skyline Query Processing over Dynamic and Incomplete Database	
Ghoncheh Babanejad Dehaki	A Spatial Skyline Query for a Group of Dynamic Users	
Lawal Mohammed Ma' aruf	Improving Skyline Computation on Uncertain Large Database	
Mahsa Aramesh	Big Data Unsupervised Feature Selection	
Maizura Ibrahim	Grid Authorization System using Usage Control Model	
Nurul Husna Mohd Saad	Skyline Query Processing on Uncertain Data	
Roziyah Darus	Maintaining Data Consistency in Mobile Database	
Teo Poh Kuang	Heterogeneity Access Control Policy Evaluation with Modality Conflict Analysis	
Waheed Yasin Mohammed	Network Bandwidth Utilization based on Logical P2P Caching for Wired and Wireless Environments in Different Network Strategies	

Student List (MSc)

Student name	Research Title	Main Supervisor
Siti Nuradilah Azman	Text Contradictions Model in Online Review Contents based on Numerical Mismatch	Dr. Iskandar Ishak
Norwini Zaini	Improving rollback capture in log based change data capture for near Real Time Relational database migration	
Amirul Zailan	Minimizing consistency anomalies in heterogeneous sensor databases based on relaxed-ACID and BASE properties	
Shamsiah Abu Muntalib	Big Data Analytic : Knowledge Discovery on Unstructured Documents	Assoc. Prof. Dr. Fatimah Sidi
Kartini Mohamed	An Improved User Authentication Model for Mobile Application Systems Using a Technique of uSign-Mf+	
Samsu Bahari Nonchi	Transformation of Unstructured Data into Structured Data in the Local Government Complaint Management Systems	
Lee Chiw Yi	Resolving Semantic Conflicts in Integrating Heterogeneous Patient Databases	Prof. Dr. Hamidah Ibrahim

Graduated Students

In 2016, DBTA has recorded 0 number of graduated postgraduate students.

Lecturer (as Main Supervisor)	Graduated MSc students in(2016)	Graduated PhD students in 2016
Assoc. Prof. Dr. Lilly Suriani Affendey	-	-
Prof. Hamidah Ibrahim	-	-
Assoc. Prof. Dr. Fatimah Sidi	-	-
Dr. Iskandar Ishak	-	-
Dr. Maslina Zolkepli	-	-

EVENTS / ACTIVITIES

Activities for DBTA in 2016

In 2016, DBTA actively participated in a project called National Integrated Information Security Threat Factor Profiling Project with CyberSecurity Malaysia. The activities that have been held during 2016 includes Meetings, Reseach Review Sessions and Workshops.

No	Event	Description	Date
1	Research Review Session NIISTFP CSM-UPM	Meeting to discuss potential research opportunities and challenges for NIISTFP	22/4/2016
2	Workshops for NIISTFP	Workshop on designing the Cyber Security Threat Profiling Model for NIISTFP	4/5/2016
3	Research Review Session NIISTFP CSM-UPM	Meeting to discuss on literature reviews for Cyber Security Threat Profiling Model for NIISTFP	19/5/2016
4	Research Review Session NIISTFP CSM-UPM	Meeting to discuss on methodologies for Cyber Security Threat Profiling Model for NIISTFP	9/6/2016
5	Workshops for NIISTFP	Workshop on designing the Cyber Security Threat Profiling Model for NIISTFP	1/7/2016
6	Research Review Session NIISTFP CSM-UPM	Meeting to discuss on the conference papers for Cyber Security Threat Profiling Model for NIISTFP	14/7/2016
7	Research Review Session NIISTFP CSM-UPM	Meeting to discuss on the conference papers for Cyber Security Threat Profiling Model for NIISTFP	22/7/2016

RESEARCH PROJECTS / GRANTS / CONSULTATIONS

2016 Research Projects/ Grants/ Consultations for DBTA

In 2016, DBTA members obtained a number of research grants mainly coming from UPM and KPM. They are also involved in a research project called NIISTFP, research collaboration between UPM and Cybersecurity Malaysia that involves DBTA members to be consultants as well as core team project members.

No	Title	Project Leader/Members	Amount	Source
1	National Integrated Information Security Threat Factor Profiling Model (NIISTFP) for ICAAS	Assoc. Prof. Dr. Fatimah Sidi, Assoc. Prof. Dr.Lilly Suriani Affendey, Dr. Maslina Zolkepli, Dr. Iskandar Ishak	RM142,500.00	CyberSecurity Malaysia
2	Manipulative Text Detection Model using Classification for Data Veracity in Digital News Portal	Dr. Iskandar Ishak, Assoc. Prof. Dr. Fatimah Sidi, Assoc. Prof. Dr.Lilly Suriani Affendey	RM20,000.00	GP-IPS/UPM
3	Threshold-based Probabilistic Interval Skyline Queries for Efficient Skyline Computation on Big Data	Prof. Dr. Hamidah Ibrahim, Assoc. Prof. Dr. Fatimah Sidi, Dr. Nurul Akmar Emran, Assoc. Prof. Dr. Razali Yaakob, Assoc. Prof. Dr. Kamsuriah Ahmad, Assoc. Prof. Dr. Lilly Suriani Affendey, Dr. Iskandar Ishak	RM61,200.00	FRGS

PUBLICATIONS

Journal papers

DBTA has produced 8 numbers of journal papers in 2016.

No	Authors	Title	Journal
1	Cecilia Adrian, Fatimah Sidi , Rusli Abdullah, Iskandar Ishak, Lilly Suriani Affendey , Marzanah A Jabar	Big data analytics implementation for value discovery: A systematic literature review	Journal of Theoretical and Applied Information Technology, Vol. 93 (2), 2016
2	Fatimah Sidi , , Iskandar Ishak , Marzanah A Jabar	Object Recognizer For Organizing And Structuring Unstructured Documents Using Interrogative Knowledge	Journal of Theoretical and Applied Information Technology, Vol. 87 (3), 442-450, 2016
3	Kartini Mohamed, Fatimah Sidi , Marzanah A. Jabar, Iskandar Ishak , Norahana Salimin, Nor Safwan Amirul Salleh, Abdul Qaiyum Hamzah, Ahmad Dahari Jarno, and Muhamad Faez Pauzi.	Strengthening User Authentication for Better Protection of Mobile Application Systems	Journal of Theoretical and Applied Information Technology, 85(3): 416- 424. ISSN: 1992-8645, [Scopus]
4	Kartini Mohamed, Fatimah Sidi , Marzanah A. Jabar, and Iskandar Ishak .	2016. Protecting Wireless Data Transmission in Mobile Application Systems Using Digital Watermarking Technique	Journal of Theoretical and Applied Information Technology, 83(1): 52-63. ISSN: 1992-8645, [Scopus]
5	Waheed Yasin, Hamidah Ibrahim , Nur Izura Udzir, and Asilah Wati Abdul Hamid	Intelligent Cooperative Web Caching Policies for Media Objects based on Supervised Machine Learning Algorithms.	Journal of Information and Communication Technology (JICT), UUM Press, Volume 15, No. 2, December 2016, pages 85-116.
6	Ali A. Alwan,	An Efficient Approach for Processing	Arabian Journal for

No	Authors	Title	Journal
	Hamidah Ibrahim, and Nur Izura Udzir.	Skyline Queries in Incomplete Multidimensional Database.	Science and Engineering, Springer, Vol. 41, No. 8, February 2016, pages 2927-2943 [Impact factor 0.728, Q3]
7	Maizura Ibrahim, Hamidah Ibrahim, Azizol Abdullah, and Rohaya Latip.	A High Performance UCON and Semantic Based Authorization Framework for Grid Computing,	Journal of Information and Communication Technology (JICT), UUM Press, Volume 15, No. 1, June 2016, pages 183-202.
8	Nurul Husna Mohd Saad, Hamidah Ibrahim, Fatimah Sidi, Razali Yaakob, and Ali Amer Alwan.	Reporting Skyline on Uncertain Dimension with Query Interval.	Journal of Telecommunication, Electronic and Computer Engineering, Volume 8, No. 6, 2016, pages 17-21.

Conference papers

DBTA has produced 5 numbers of conference papers in 2016.

No	Authors	Title	Conference
1	Rajina R. Mohamed, Iskandar Ishak, Thinagara Perumal, Fatimah Sidi, Hamidah Ibrahim, Mohd Syafiq Hamzah	Implementation of Residence Automatic Plant Water Irrigation using Embedded Soil Moisture Sensor for Multifarious Soil	3rd International Conference on Robotic Automation System 2016 (ICORAS 2016)
2	Rajina R. Mohamed, Iskandar Ishak, Thinagara Perumal, Fatimah Sidi, Hamidah Ibrahim, Mohd Syafiq Hamzah	Implementation of Smart Safety Home System	2nd International Conference on Information Technology 2016
3	Fatimah Sidi, Iskandar Ishak, Lilly Suriani	Identifying Real-time Sentiment on Oil-Palm Industry Based on Social Media	International Agriculture Congress 2016

No	Authors	Title	Conference
	Affendey		
4	Sharmila Mat Yusof, Fatimah Sidi, Hamidah Ibrahim, and Lilly Suriani Affendey.	A Study of Multidimensional Modeling Approaches for Data Warehouse.	International Conference on Applied Science and Technology
5	Nurul Husna Mohd Saad, Hamidah Ibrahim , Fatimah Sidi, Razali Yaakob, and Ali Amer Alwan.	Computing Range Skyline Query on Uncertain Dimensions.	<i>Proceedings of the 27th International Conference on Database and Expert Systems Applications (DEXA 2016)</i> , LNCS 9829, 5-8 September 2016, Porto (Portugal), pages 377-388.

ACHIEVEMENTS / AWARDS

International/local awards

DBTA members has won a number of awards and achievements in 2016.

No			
1			
2			
3			

APPENDIX

Appendix will contain the title and abstract of each student graduated in that year.