

Amr Magdy

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Research Interests

Big data management, database systems, microblogs data management, spatio-temporal query processing, location-based social networks, indexing and main-memory management techniques.

Education

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| Ph.D. in Computer Science
Computer Science and Engineering Dept., University of Minnesota – Twin Cities | Expected May 2017
Minneapolis, USA |
| <ul style="list-style-type: none">• Advisor: Mohamed F. Mokbel• Thesis Title: Scalable Microblogs Data Management. | |
| M.Sc. in Computer Science
Computer Science and Engineering Dept., University of Minnesota – Twin Cities | Sep 2011 – Apr 2013
Minneapolis, USA |
| M.Sc. in Computer and Systems Engineering
Computer and Systems Engineering Department, Alexandria University | Sep 2008 – Jul 2011
Alexandria, Egypt |
| <ul style="list-style-type: none">• Thesis Title: Discovering Clusters of Arbitrary Shapes and Densities in Data Streams. | |
| B.Sc. in Computer and Systems Engineering
Computer and Systems Engineering Department, Alexandria University | Sep 2003 – Jul 2008
Alexandria, Egypt |
| <ul style="list-style-type: none">• Cumulative Grade: Distinction with Degree of Honor (92.67%) | |

Recognitions and Awards

- Best of **IEEE ICDE 2014** research papers, invited to IEEE TKDE journal special issue.
- **Finalist in Microsoft Research Ph.D. Fellowship 2014.**
- **Doctoral Dissertation Fellowship 2015**, University of Minnesota.
- Best demonstration award in UMN **U-Spatial Symposium 2012.**
- **Ten travel grants** to several major database conferences and spatial databases conferences 2011-2016.
- **Prof. Naaem Aboutaleb award** for academic excellence – Alexandria University – 2008 (awarded to top two students among all the department's 67 students).
- **Bronze medals in 3rd and 4th Egyptian Olympiad in Informatics** (EOI 2005 and 2006).
- **National Scholarship for Academic Excellence**, Egyptian Ministry of Higher Education – 2003 (among top 0.1% students nation-wide).

Research and Professional Experience

- **University of Minnesota**, Computer Science and Engineering Dept., MN, USA Sep 2011 - Present
Research Assistant **Advisor:** Mohamed F. Mokbel
I developed several scalable real-time indexing and main-memory management techniques for Microblogs data, e.g., tweets, online reviews, user comments, and check-ins. These techniques are realized in Kite system that is released on <http://kite.cs.umn.edu>. I also collaborated in different research projects.
- **Microsoft Research**, Redmond, WA, USA Jun 2014 – Aug 2014
Research Intern **Mentors:** Sameh Elnikety, Yuxiong He
I worked on supporting scalable snapshot-isolated distributed transactions in SQL Azure platform. Our proof of concept is developed in SQL Server codebase.
- **GIS Technology Innovation Center**, Makkah, Saudi Arabia Sep 2013 – May 2014
Research Assistant **Mentor:** Mohamed F. Mokbel
I architected Taghreed system that supports spatio-temporal keyword queries on both real-time and historical Microblogs data, e.g., tweets, online reviews, or user comments. Taghreed has been incubated by

Wadi Makkah innovation incubator and is currently powering two startup companies. I also mentored undergraduate research assistants and collaborated with development engineers for technology transfer.

- **Microsoft Research**, Redmond, WA, USA May 2012 – Aug 2012
Research Intern **Mentors:** Sameh Elnikety, Yuxiong He
I worked on designing and realizing a real-time index to support spatio-temporal queries on fast data that come in tens of thousands every second. Our work is incorporated by Bing GeoSpatial team and has been selected among IEEE ICDE'14 best research papers. I also gave several presentations for business demonstrations.
- **Google Inc.**, Mountain View, CA, USA Jun 2010 – Sep 2010
Software Engineer Intern **Mentor:** Mohamed G. Elfeky
I worked on exploring different techniques to automate Arabic language syntax correction using rule-based systems. For that, I developed C/C++ code for demonstration purposes.
- **Microsoft Research**, Cairo Advanced Technology Lab, Egypt Feb 2009 – Jun 2010
Research Assistant **Mentor:** Nayer Wanas
I worked on mining web 2.0 user-generated contents to discover off-topic posts in discussion forums, construct wiki-like repositories from discussion forums, and check credibility of web documents based on web contents. All developed techniques are language-independent. I have developed C/C++ and visual C# code for demonstration purposes, and documented the research output in technical publications and reports.

Teaching Experience

- **University of Minnesota**, Computer Science and Engineering Dept., MN, USA Spring 2016
Instructor
Responsibilities: Delivering lectures in database system for the course “*CSCi 5708: Architecture and Implementation of DBMS*” and designing homework exercises, programming assignments, and exams.
- **University of Minnesota**, Computer Science and Engineering Dept., MN, USA Spring 2012
Teaching Assistant
Course: Introduction to Operating Systems.
Responsibilities: Preparing and grading programming assignments, delivering lab tutorials and recitations, and grading exams.
- **Alexandria University**, Computer and Systems Engineering Dept., Egypt Fall 2008 - Summer 2011
Teaching Assistant
Courses: Pattern Recognition, Advanced Data Structures, Computer Networks, Programming Languages and Compilers, C/C++ Programming, Introduction to Web & HTML, Introduction to Computer Science, Computer and Increasing Productivity, and Technical Report Writing.
Responsibilities: Preparing and discussing homework exercises and programming assignments, delivering lab tutorials and recitations, and grading exams and quizzes.

Service and Activities

- **Reviewer:** VLDB Journal 2016
- **Program Committee:** The International Workshop on Social Computing, co-organized with WWW 2017
- **External Reviewer:** VLDB'12-'17, ICDE'12-'16, SIGMOD'12-'17, SIGSPATIAL'14-'16, SSTD'13, GeoInformatica, TKDE, EDBT'17, MDM'12-'13, SSDBM'12-'13, and ICDCS'12.
- **Student Volunteer:**
 - NSF Workshop on Social Networks and Mobility in the Cloud, Washington DC, 2012.
 - ACM SIGSPATIAL 2014, 2016
- **Webmaster:** PersDB 2012 Workshop
- **Advising Mentor** for three years in Alexandria ACM Chapter Mentorship Program. Mentee has joined Ph.D. program in a distinguished US research group. (2013-2016)
- Microsoft Student Partner in Alexandria University during academic year 2007/2008.
- Alexandria ACM Student Chapter, 2005-2008 (program committee, treasurer, and course coordinator).
- Mentor of 17 students in the 4th Egyptian Olympiad in Informatics (EOI 2006), 11 of them got medals.

Research Publications

Journal Papers

- **Amr Magdy**, Mohamed F. Mokbel, Sameh Elnikety, Suman Nath, Yuxiong He. *Venus: Scalable Real-time Spatial Queries on Microblogs with Adaptive Load Shedding*. In IEEE Transactions on Data Engineering, **IEEE TKDE**, 28(2): pp. 356-370, February 2016. **Special Issue for Best ICDE 2014 Papers**.
- **Amr Magdy**, Mashaal Musleh, Kareem Tarek, Louai Alarabi, Saif Al-Harathi, Hicham G. Elmongui, Thanaa M. Ghanem, Sohaib Ghani, Mohamed F. Mokbel. *Tagreer: A System for Spatio-temporal Analysis on Microblogs*. In IEEE Data Engineering Bulletin, 38(2): pp. 68-76, June 2015.

Conference Papers

- **Amr Magdy**, Rami Alghamdi, Mohamed F. Mokbel. *On Main-memory Flushing in Microblogs Data Management Systems*. In Proceedings of the IEEE International Conference on Data Engineering, **IEEE ICDE 2016**, Helsinki, Finland, May 2016. (Full research paper)
- Christopher Jonathan, **Amr Magdy**, Mohamed F. Mokbel, Albert Jonathan. *GARNET: A Holistic System Approach for Trending Queries in Microblogs*. In Proceedings of the IEEE International Conference on Data Engineering, **IEEE ICDE 2016**, Helsinki, Finland, May 2016. (Full research paper)
- **Amr Magdy**, Ahmed M. Aly, Mohamed F. Mokbel, Sameh Elnikety, Yuxiong He, Suman Nath, Walid G. Aref. *GeoTrend: Spatial Trending Queries on Real-time Microblogs*. In the Proceedings of the International ACM SIGSPATIAL GIS Conference, **ACM SIGSPATIAL 2016**, San Francisco, CA, October 2016. (Full research paper)
- **Amr Magdy**, Mohamed F. Mokbel. *Towards a Microblogs Data Management System*. In the Proceedings of IEEE International Conference on Mobile Data Management, **IEEE MDM 2015**, Pittsburgh, PA, June 2015. (Full invited industrial paper)
- **Amr Magdy**, Mohamed F. Mokbel, Sameh Elnikety, Suman Nath, Yuxiong He. *Mercury: A Memory-Constrained Spatio-temporal Real-time Search on Microblogs*. In Proceedings of the IEEE International Conference on Data Engineering, **IEEE ICDE 2014**, Chicago, IL, March 2014. (**Selected among ICDE Best Papers**) (Full research paper)
- **Amr Magdy**, Louai Alarabi, Saif Al-Harathi, Mashaal Musleh, Thanaa M. Ghanem, Sohaib Ghani, Mohamed F. Mokbel. *Taghreed: A System for Querying, Analyzing, and Visualizing Geotagged Microblogs*. In the Proceedings of the International ACM SIGSPATIAL GIS Conference, **ACM SIGSPATIAL 2014**, Dallas, TX, November 2014. (Full systems paper)
- Mohamed F. Mokbel, Louai Alarabi, Jie Bao, Ahmed Eldawy, **Amr Magdy**, Mohamed Sarwat, Ethan Waytas, Steven Yackel. *MNTG: An Extensible Web-Based Traffic Generator*. In Proceedings of the International Symposium on Spatial and Temporal Databases, **SSTD 2013**, August 2013, Munich, Germany. (Full research paper)

Tutorials

- **Amr Magdy**, Mohamed F. Mokbel. *Microblogs Data Management Systems: Querying, Analysis, and Visualization*. In Proceedings of the ACM International Conference on Management of Data, **ACM SIGMOD 2016**, San Francisco, CA, USA, June 2016.
- **Amr Magdy**, Mohamed F. Mokbel. *Microblogs Data Management and Analysis*. In Proceedings of the IEEE International Conference on Data Engineering, **IEEE ICDE 2016**, Helsinki, Finland, May 2016.

System Demonstrations

- **Amr Magdy**, Louai Alarabi, Saif Al-Harathi, Mashaal Musleh, Thanaa M. Ghanem, Sohaib Ghani, Mohamed F. Mokbel. *Demonstration of Taghreed: A System for Querying, Analyzing, and Visualizing Geotagged Microblogs*. In Proceedings of the IEEE International Conference on Data Engineering, **IEEE ICDE 2015**, Seoul, South Korea, April 2015.

- **Amr Magdy**, Ahmed M. Aly, Mohamed F. Mokbel, Sameh Elnikety, Yuxiong He, Suman Nath. *Mars: Real-time Spatio-temporal Queries on Microblogs*. In Proceedings of the IEEE International Conference on Data Engineering, **IEEE ICDE 2014**, Chicago, IL, March 2014.
- Mohamed F. Mokbel, Louai Alarabi, Jie Bao, Ahmed Eldawy, **Amr Magdy**, Mohamed Sarwat, Ethan Waytas, Steven Yackel. *Demonstration of MNTG: An Extensible Web-Based Traffic Generator*. In Proceedings of the IEEE International Conference on Data Engineering, **IEEE ICDE 2014**, Chicago, IL, March 2014.
- Thanaa M. Ghanem, **Amr Magdy**, Mashaal Musleh, Mohamed F. Mokbel. *VisCAT: Spatio-Temporal Visualization and Aggregation of Categorical Attributes in Twitter*. In Proceedings of the International ACM SIGSPATIAL GIS Conference, **ACM SIGSPATIAL 2014**, Dallas, TX, November 2014.
- Mohamed Sarwat, Jie Bao, Ahmed Eldawy, Justin J. Levandoski, **Amr Magdy**, Mohamed F. Mokbel. *Sindbad: A Location-based Social Networking System*. In Proceedings of the ACM International Conference on Management of Data, **ACM SIGMOD 2012**, Scottsdale, AZ, May 2012.

Under Submission/Preparation

- **Amr Magdy**, Mohamed F. Mokbel. *Demonstration of Kite: A Scalable Microblogs Data Management System*. Under submission to **IEEE ICDE 2017**. (Demo paper)
- **Amr Magdy**, Mohamed F. Mokbel. *Kite: A Scalable Microblogs Data Management System (Innovative Systems Paper)*. Under preparation for **VLDB 2017**. (Full systems paper)
- Louai Alarabi, **Amr Magdy**, Mohamed F. Mokbel. *Interactive Visualization on Big Spatio-temporal Textual Data*. Under submission to **VLDB 2017**. (Full research paper)

Book Chapters

- Mohamed Sarwat, Jie Bao, Chi-Yin Chow, Justin Levandoski, **Amr Magdy**, Mohamed F. Mokbel. *Context Awareness in Mobile Systems*. Chapter in **Data Management in Pervasive Systems** book, **Data-Centric Systems and Applications** Book Series, Springer Verlag, Editors: Francesco Colace, Massimo De Santo, Vincenzo Moscato, Antonio Picariello, Fabio A. Schreiber, Letizia Tanca, 2015.

Patents

- Mohamed Mokbel, **Amr Magdy**. *Towards a Microblogs Data Management System*. Provisionally filed in U.S. Patent and Trademark Office on September 10, 2014, Ref number: 434819US8.

Workshop Papers

- **Amr Magdy**. *Scalable Microblogs Data Management*. In Proceedings of the **SIGMOD PhD Symposium**, in conjunction with the ACM International Conference on Management of Data, **ACM SIGMOD 2016**, San Francisco, CA.
- **Amr Magdy**, Thanaa M. Ghanem, Mashaal Musleh, and Mohamed F. Mokbel. *Exploiting Geo-tagged Tweets to Understand Localized Language Diversity*. In Proceedings of the International ACM Workshop on Managing and Mining Enriched Geo-Spatial Data, **GeoRich 2014**, in conjunction with the ACM International Conference on Management of Data, **ACM SIGMOD 2014**, Snowbird, UT.
- Mohamed Sarwat, Jie Bao, Ahmed Eldawy, Justin J. Levandoski, **Amr Magdy**, and Mohamed F. Mokbel. *The Anatomy of Sindbad: A Location-Aware Social Networking System*. In Proceeding of the International Workshop on Location-Based Social Networks, **LSBN 2012**, in conjunction with **ACM SIGSPATIAL 2012**, Redondo Beach, CA. (invited paper)
- **Amr Magdy** and Nayer Wanas. *Web-based Statistical Fact Checking of Textual Documents*. In Proceedings of the International Workshop on Search and Mining User-generated Contents, **SMUC 2010**, in conjunction with the ACM International Conference on Information and Knowledge Management (**CIKM 2010**), Toronto, Canada. (short paper)
- Nayer Wanas, **Amr Magdy**, and Heba Ashour. *Using Automatic Keyword Extraction to Detect Off-topic Posts in Online Discussion Boards*. In Proceedings of Content Analysis in Web 2.0 Workshop, **CAW 2.0**, in conjunction with the International World Wide Web Conference (**WWW 2009**), Madrid, Spain.

References

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