Amr Magdy

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Research Interests

Big data management, spatial computing, database systems, spatio-temporal data management, large-scale data analytics, indexing, and main-memory management.

Education

Ph.D. in Computer Science — July 2017
Computer Science and Engineering Dept., University of Minnesota – Twin Cities — Minneapolis, USA
- Thesis focus: Scalable Microblogs Data Management
- Thesis advisor: Mohamed F. Mokbel

M.Sc. in Computer Science — April 2013
Computer Science and Engineering Dept., University of Minnesota – Twin Cities — Minneapolis, USA

M.Sc. in Computer and Systems Engineering — July 2011
Computer and Systems Engineering Dept., Alexandria University — Alexandria, Egypt
- Thesis focus: Density-based Clustering of Data Streams with Heterogeneous Densities
- Thesis advisors: Nagwa El-Makky and Noha A. Yousri

B.Sc. in Computer and Systems Engineering — July 2008
Computer and Systems Engineering Dept., Alexandria University — Alexandria, Egypt
- Cumulative grade: **Distinction** with Degree of Honor (92.67%)
- Thesis focus: Highly Interactive Flash-based Online Classroom
- Thesis advisors: Magdy Nagi and Khaled Nagi

Research and Professional Experience

- **University of California, Riverside,** Computer Science and Eng. Dept., CA, USA — Jul 2017 - Present
Tenure-track Assistant Professor
- **University of Minnesota,** Computer Science and Engineering Dept., MN, USA — Sep 2011 – Jun 2017
Research Assistant **Advisor:** Mohamed F. Mokbel
- **Microsoft Research**, Redmond, WA, USA — Jun 2014 – Aug 2014
Research Intern **Mentors:** Sameh Elnikety, Yuxiong He
- **GIS Technology Innovation Center**, Makkah, Saudi Arabia — Sep 2013 – May 2014
Research Assistant **Mentor:** Mohamed F. Mokbel
- **Microsoft Research**, Redmond, WA, USA — May 2012 – Aug 2012
Research Intern **Mentors:** Sameh Elnikety, Yuxiong He
- **Google Inc.**, Mountain View, CA, USA — Jun 2010 – Sep 2010
Software Engineer Intern **Mentor:** Mohamed G. Elfeky
- **Microsoft Research**, Cairo Advanced Technology Lab, Cairo, Egypt — Feb 2009 – Jun 2010
Research Assistant **Mentor:** Nayer Wanas

Awards and Recognitions

- **Shortlist of ACM SIGSPATIAL 2024 10-Year Impact Award** (equivalent to Test-of-time Award).
- **ACM SIGMOD** Distinguished PC Member Award 2024.
- **Microsoft** Research Award 2024.
- **NSF CAREER** Award 2023, by USA National Science Foundation.
- **Google-CAHSI** Research Award 2023.
- **Shortlist of best ACM SIGSPATIAL 2023** research papers, invited to ACM TSAS journal special issue.

- **Shortlist of best of SSTD 2023** research papers, invited to Springer GeoInformatica journal special issue.
- **Best paper runner-up in IEEE MDM 2023.**
- **Best paper award in ICT-DM 2019**.
- **Shortlist of best ACM SIGSPATIAL 2019** research papers, invited to ACM TSAS journal special issue.
- **NSF CRII** Award 2019, by USA National Science Foundation.
- **Best Computer Science Ph.D. Dissertation**, University of Minnesota, 2018.
- **Doctoral Dissertation Fellowship**, University of Minnesota, 2015.
- **Shortlist of best of IEEE ICDE 2014** research papers, invited to IEEE TKDE journal special issue.
- **Finalist in Microsoft Research Ph.D. Fellowship** 2014.
- Best demonstration award in UMN **U-Spatial Symposium 2012**.
- **Prof. Naaem Aboutaleb Award** for academic excellence – Alexandria University – 2008
  (awarded to the top two students among all the department's 67 students).
- **Bronze medals in the 3rd and 4th Egyptian Olympiad in Informatics** (EOI 2005 and 2006).
- **National Scholarship for Academic Excellence**, Egyptian Ministry of Higher Education – 2003
  (awarded to the top 0.1% of students nationwide).

Research Fund
- **PI: Microsoft** Award**:** Visual Knowledge Distillation on the Edge: An Application on Enhancing Self-Inference Cameras for Near-Real-Time Operations. PI: Amr Magdy, **$70,000**, 1/1/2024-12/31/2024.
- **PI: NSF** CAREER Award IIS-2237348: CAREER: Scalable Spatial Data Science on User-generated Data. PI: Amr Magdy, **$531,707**, 4/1/2023-3/31/2028.
- **PI: Google** CAHSI Award**:** SUDeC: A Scalable Framework for User-defined Spatial Clustering Queries on S2 Spherical Coordinate System. PI: Amr Magdy, **$99,993**, 9/1/2023-8/31/2024.
- **PI: NSF** Award IIS-1849971: CRII: III: Scalable Noise-filtering and Community Queries on User-generated Data. PI: Amr Magdy, **$174,854**, 10/1/2019-9/30/2022.
- **Co-PI: NSF** Award SES-1831615: RIDIR: Scalable Geospatial Analytics for Social Science Research. PI: Sergio Rey, Co-PIs: Ran Wei, Amr Magdy, Vassilis Tsotras, **$1,000,000**, 10/1/2018-9/30/2023.
- **Co-PI: NSF** Award CNS-2031418: Collaborative Research: Encoding Geography - Scaling up an RPP to Achieve Inclusive GeoComputational Education. PI: Coline Dony, Co-PIs: Atsushi Nara, Sergio Rey, Amr Magdy, Michael Solem, Rachel Russell, **$999,979**, 1/1/2021-12/31/2024.
- **Senior Personnel: NSF** Award IIS-2123444: DS-PATH: Data Science Career Pathways in the Inland Empire. PI: Mariam Salloum, Co-PIs: Analisa Flores, Xinping Cui, Paea LePendu, Vassilis Tsotras, **$1,025,000**, 10/1/2021-9/30/2024.
- **Senior Personnel: NSF** Award CNS-1837577: Encoding Geography: Building Capacity for Inclusive Geo-Computational Thinking with Geospatial Technologies. PI: Coline Dony, Co-PIs: Atsushi Nara, Sergio Rey, Michael Solem, **$299,989**, 11/1/2018-10/31/2020.

Teaching Experience
- **University of California, Riverside,** Computer Science and Eng. Dept., CA, USA   Fall 2017 - Present
  Tenure-track Assistant Professor
  Responsibilities: The main instructor for three courses per year. Courses include *Spatial Computing, Introduction to Data Structures and Algorithms, Algorithms Design and Analysis, Advanced Database Management Systems, and Senior Design Project in Big Data Analysis*.
- **University of Minnesota,** Computer Science and Engineering Dept., MN, USA   Spring 2016
  Instructor
  Responsibilities: Delivering lectures in database systems for the course "*CSCi 5708: Architecture and Implementation of DBMS*".
- **University of Minnesota,** Computer Science and Engineering Dept., MN, USA   Spring 2012
  Teaching Assistant
  Course: Introduction to Operating Systems.
- **Alexandria University**, Computer and Systems Engineering Dept., Egypt   Fall 2008 - Summer 2011
  Tenure-track 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.

Selected Invited Talks

- Geospatial Data Science Series, University of Wisconsin, Madison, February 2024.
- Geospatial Talks, Google, Madison, Wisconsin, February 2024.
- CEMSE Seminar, King Abdullah University of Science and Technology (KAUST), Saudi Arabia, October 2023.
- Qatar Computing Research Institute (QCRI) Talk, Qatar, October 2023.
- Doha Data Forum for Inclusive Data Ecosystems and Effective Decision Making, Qatar, October 2023.
- Colloquium, School of Computer Science and Engineering, Nanyang Technological University (NTU), Singapore, July 2023.
- Talks with Experts Series, Computer and Systems Engineering, Alexandria University, Egypt, July 2023.
- Guest Lecture, Department of Earth and Planetary Sciences, University of California, Riverside, April 2023.
- Geographical Information Systems and Spatial Databases Lectures, University of Maryland, College Park, March 2023.
- Colloquium, Computer Science Department, Iowa State University, March 2023.
- Lighting Talk, University of California GIS Week, November 2021.
- Colloquium, Department of Statistics, University of California, Riverside, October 2021.
- Colloquium, Computer Science Department, University of California, Santa Barbara, October 2019.
- Keynote speech at the International Portable Emissions Measurement System (PEMS) Conference, UC Riverside, March 2019.
- SoCal Social Analytics Workshop, UC Irvine, May 2018.
- Information Systems Group (ISG) Seminar, UC Irvine, November 2017.
- Data Science Seminar, UC Riverside, October 2017.

Professional Service and Activities

Professional Memberships

- IEEE Member:
  - Senior Member: 2024-Present
  - Professional Member: 2017-2024
  - Student Member: 2012-2017
  - Member of the IEEE Computer Society
- ACM Member:
  - Professional Member: 2017-Present
  - Student Member: 2007-2017
  - Senior Member application under review
  - Member of the ACM SIGSPATIAL and SIGMOD

Research Community Service

- **Founding Chair:** ACM SIGSPATIAL Recognition Committee. The committee is responsible for SIGSPATIAL awards. The committee reports to the SIGSPATIAL executive committee.
- **Guest Editor**: Springer GeoInformatica Journal, Frontiers in Big Data Journal
- **Organizer/Co-organizer**:
  - **Sponsorship chair**: ACM SIGSPATIAL 2024, SSTD 2023, ACM SIGSPATIAL LENS Workshop 2017.
  - **Student Research Competition (SRC) chair**: ACM SIGSPATIAL 2023 and 2022.
  - **Volunteers chair:** IEEE ICDE 2023.
  - **Registration chair**: SSTD 2019.
  - **Publicity co-chair**: IEEE MDM 2023, ACM SIGSPATIAL 2019, IEEE Big Data 2019, and SSTD 2021.
  - **Treasurer co-chair**: ACM SIGSPATIAL 2018.

- **General co-chair**: ACM SIGSPATIAL Workshop on Geo-computational Thinking in Education, GeoEd 2019, ACM SIGSPATIAL Workshop on Analytics for Local Events and News, LENS 2017, 2018, and 2019, and ACM SIGMOD Workshop on Managing and Mining Enriched Geo-Spatial Data 2020.
- **Proceedings chair**: ACM SIGSPATIAL Workshops LENS 2017 and GeoEd 2019.
- ESRI Spatial Data Science Workshop at UCR.
- **Peer-Reviewer and Program Committees**:
  - **Grant Proposals**:
    - **USA NSF** (2018, 2023)
    - **Canada NSERC** (Discovery Grants 2017, New Frontiers in Research Fund, NFRF, Exploration 2019, 2021, and 2022)
    - **Puerto Rico** Science, Technology & Research Trust (2019)
  - **Journals**:
    - VLDB Journal (**VLDBJ**, 2016-Present)
    - ACM Transactions on Database Systems (**ACM TODS**, 2017- Present)
    - IEEE Transactions on Knowledge and Data Engineering (**IEEE TKDE**, 2018-Present)
    - ACM Transactions on Spatial Algorithms and Systems (**ACM TSAS**, 2018-Present)
    - **Springer GeoInformatica** (2017- Present)
    - Springer Journal on Distributed and Parallel Databases (**Springer DAPD**, 2018-Present)
    - Elsevier Journal on Future Generation Computer Systems (**FGCS**, 2018-Present)
    - Frontiers in Big Data (2018-Present)
    - ISPRS International Journal of Geo-Information (**ISPRS IJGI**, 2018-Present)
  - **Conferences**:
    - ACM International Conference on Advances in Geographic Information Systems (**ACM SIGSPATIAL**, PC Member 2018-2022, **Senior PC Member** 2023-Present)
    - ACM International Conference on Management of Data (**ACM SIGMOD**, 2022-Present)
    - The International Conference on Very Large Databases (**VLDB**, 2023-Present)
    - IEEE International Conference on Data Engineering (**IEEE ICDE**, 2020-Present)
    - International Symposium on Spatio-Temporal Databases (**SSTD**, 2019-Present)
    - IEEE International Conference on Mobile Data Management (**IEEE MDM**, PC Member 2019-2023, **Senior PC Member** 2024-Present)
    - IEEE International Conference on Big Data (**IEEE Big Data**, 2024-Present)
    - International Conference on Scientific and Statistical Database Management (**SSDBM**, 2018-Present)
    - IEEE BigData Congress (2018-Present)

University and Departmental Service

- Graduate Admission Committee, CS Department, 2022-Present.
- Faculty Hiring Committee, external member, Department of Statistics, 2021-2022.
- TA Allocation Committee, CS Department, 2020.
- Data Science Faculty Committee, CS Department, 2020-Present.
- Committee for *Spatial Analysis* minor, cross-colleges, 2019.
- Reviewer, contributor, and presenter in several research and educational programs and activities, including women in engineering activities, UCR mini-grants, Chancellor's research fellowship, Cal-Bridge, CS4All code camp, ABET evaluation, grad open house, student orientations, workshops, panels, and department colloquium.

Community and Public Service

- Tutorial for K-12 teachers and college and university geography professors from San Diego State University and Mesa College, San Diego, on *Using ChatGPT for Generating Web-based Interactive Maps*, July 2023.
- Lesson segments to incorporate *Geospatial Concepts in CS teaching*, in collaboration with middle computer science teachers from Sweetwater Union High School District, San Diego, July 2023.
- Lesson segments to incorporate *Computational Thinking in Geography Education*, in collaboration with geography teachers from Sweetwater Union High School District, San Diego, June 2023.
- Tutorial for K-12 teachers in Riverside, on *Using ChatGPT for Improving K-12 Teaching and Tutoring*, June 2023.
- *Introduction to Computational Thinking to K-12 Teachers*, California Geographic Alliance, April 2022.
- STEM Expert Consultant, Riverside County Office of Education (RCOE) Science Fair Expo, 2017-2020.

Pre-tenure Service

- **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 a Ph.D. program in a distinguished US research group. (2013-2016)
- Microsoft Student Partner in Alexandria University during the academic year 2007/2008.
- Alexandria ACM Student Chapter, 2005-2008 (program committee, treasurer, and course coordinator).
- Mentored 17 students in the 4th Egyptian Olympiad in Informatics (EOI 2006); 11 got medals.

Professional Meetings

- Dagstuhl Seminar on Mobility Data Science, Schloss Dagstuhl - Leibniz Center for Informatics, Seminar #22021, Wadern, Germany, January 2022. https://www.dagstuhl.de/en/seminars/seminar-calendar/seminar-details/22021
- NSF Workshop on GeoSpatial Software: Connecting Big Data with Geospatial Discovery and Innovation. NSF Geospatial Software Institute, University of Southern California, Los Angeles, CA, January 2018.

Selected Research Publications

The complete list of major journal and conference publications is available at:
https://dblp.dagstuhl.de/pid/05/8073-1.html

Journal Papers

1. Abdulaziz Almaslukh, Yongyi Liu, **Amr Magdy**. *Scalable Spatio-temporal Top-k Interaction Queries on Dynamic Communities*. In the ACM Transactions on Spatial Algorithms and Systems (**TSAS**), 2024.
2. Mohamed F. Mokbel, Mahmoud Attia Sakr, Li Xiong, Andreas Züfle, Jussara M. Almeida, Taylor Anderson, Walid G. Aref, Gennady L. Andrienko, Natalia V. Andrienko, Yang Cao, Sanjay Chawla, Reynold Cheng, Panos K. Chrysanthis, Xiqi Fei, Gabriel Ghinita, Anita Graser, Dimitrios Gunopulos, Christian S. Jensen, Joon-Sook Kim, Kyoung-Sook Kim, Peer Kröger, John Krumm, Johannes Lauer, **Amr Magdy**, Mario A. Nascimento, Siva Ravada, Matthias Renz, Dimitris Sacharidis, Cyrus Shahabi, Flora D. Salim, Mohamed Sarwat, Maxime Schoemans, Bettina Speckmann, Egemen Tanin, Xu Teng, Yannis Theodoridis, Kristian Torp, Goce Trajcevski, Marc J. van Kreveld, Carola Wenk, Martin Werner, Raymond Chi-Wing Wong, Song Wu, Jianqiu Xu, Moustafa Youssef, Demetris Zeinalipour, Mengxuan Zhang, Esteban Zimányi. *Towards Mobility Data Science (Vision Paper)*. In the ACM Transactions on Spatial Algorithms and Systems (**TSAS**), 2024.
3. Hussah Alrashid, Yongyi Liu, **Amr Magdy**. *PAGE: Parallel Scalable Regionalization Framework*. In the ACM Transactions on Spatial Algorithms and Systems (**TSAS**), 2023.

4. Laila Abdelhafeez, **Amr Magdy**, Vassilis Tsotras. *SGPAC: Generalized Scalable Spatial GroupBy Aggregations Over Complex Polygons*. In the International Journal on Advances of Computer Science for Geographic Information Systems, **Springer GeoInformatica**, 2023.

5. Michael Solem, Coline Dony, Thomas Herman, Kelly León, **Amr Magdy**, Atsushi Nara, Sergio Ray, Rachel Russell. *Building Educational Capacity for Inclusive Geocomputation: A Research-Practice Partnership in Southern California*. In the **Journal of Geography**, Volume 120, Issue 4, 2021.

6. Abdulaziz Almaslukh, Yunfan Kang, **Amr Magdy**. *Geo-Social Personalized Keyword Search Over Streaming Data*. In the ACM Transactions on Spatial Algorithms and Systems (**TSAS**), 7(4): 20:1-20:28, 2021.

7. Abdulaziz Almaslukh, **Amr Magdy**, Ahmed M. Aly, Mohamed F. Mokbel, Sameh Elnikety, Yuxiong He, Suman Nath, Walid G. Aref: *Local Trend Discovery on Real-time Microblogs with Uncertain Locations in Tight Memory Environments*. In the International Journal on Advances of Computer Science for Geographic Information Systems, **Springer GeoInformatica** 24(2): 301-337, 2020.

8. **Amr Magdy**, Laila Abdelhafeez*, Yunfan Kang*, Eric Ong, Mohamed F. Mokbel. *Microblogs Data Management: A Survey*. The International Journal on Very Large Data Bases, **VLDB Journal**, 29(1): 177-216, 2020. (* equal contributions)

9. Abdulaziz Almaslukh, **Amr Magdy**, and Sergio Rey. *Spatio-temporal Analysis of Meta-data Semantics of Market Shares Over Large Public Geosocial Media Data*. In the Journal of Location Based Services, **LBSJ**, 2018.

10. **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**.

11. **Amr Magdy**, Mashaal Musleh, Kareem Tarek, Louai Alarabi, Saif Al-Harthi, Hicham G. Elmongui, Thanaa M. Ghanem, Sohaib Ghani, Mohamed F. Mokbel. *Taqreer: A System for Spatio-temporal Analysis on Microblogs*. In IEEE Data Engineering Bulletin, 38(2): pp. 68-76, June 2015.

Conference Papers

1. Yongyi Liu, Yunfan Kang, Ahmed Mahmood, **Amr Magdy**. *Scalable Evaluation of Local K-Function for Radius-Accurate Hotspot Detection in Spatial Networks*. In Proceedings of the ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, **ACM SIGSPATIAL 2023**, Hamburg, Germany, November 2023. **(Best Paper Runner-up)** (Full research paper)

2. Hussah Alrashid, **Amr Magdy**, Sergio J. Rey. *Statistical Inference for Spatial Regionalization*. In Proceedings of the ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, **ACM SIGSPATIAL 2023**, Hamburg, Germany, November 2023. (Full research paper)

3. Andrés C. Romero, Vassilis J. Tsotras, **Amr Magdy**. *Scalable Overlay Operations over DCEL Polygon Layers*. In Proceedings of the International Symposium on Spatial and Temporal Databases, **SSTD 2023**, Calgary, Canada, August 2023. **(Selected among top-5 SSTD Best Papers)** (Full research paper)

4. Hussah Alrashid, **Amr Magdy**. *A Scalable Unified System for Seeding Regionalization Queries*. In Proceedings of the International Symposium on Spatial and Temporal Databases, **SSTD 2023**, Calgary, Canada, August 2023. (Full industrial paper)

5. Laila Abdelhafeez, **Amr Magdy**, Vassilis J. Tsotras. *DDCEL: Efficient Distributed Doubly Connected Edge List for Large Spatial Networks*. In the Proceedings of IEEE International Conference on Mobile Data Management, **IEEE MDM 2023**, Singapore, June 2023. **(Best Paper Runner-up)** (Full research paper)

6. Yongyi Liu, **Amr Magdy**. *U-ASK: A Unified Architecture for kNN Spatial-Keyword Queries Supporting Negative Keyword Predicates*. In Proceedings of the ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, **ACM SIGSPATIAL 2022**, November 2022. (Full research paper)

7. Hussah Alrashid, Yongyi Liu, **Amr Magdy**, Sergio Rey. *SMP: Scalable Max-p Regionalization*. In Proceedings of the ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, **ACM SIGSPATIAL 2022**, November 2022. (Short research paper)

8. Yongyi Liu, Ahmed Mahmood, **Amr Magdy**, Sergio Rey. *PRUC: P-Regions with User-Defined Constraint*. In the Proceedings of the International Conference on Very Large Data Bases, **VLDB 2022**.

9. Yunfan Kang, Amr Magdy. *EMP: Max-P Regionalization with Enriched Constraints*. In Proceedings of the IEEE International Conference on Data Engineering, **IEEE ICDE 2022**, Online, April 2022. (Full research paper)

10. Mohammadreza Zare Shahneh, Samet Oymak, **Amr Magdy**. *A-GWR: Fast and Accurate Geospatial Inference via Augmented Geographically Weighted Regression*. In Proceedings of the ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, **ACM SIGSPATIAL 2021**, November 2021. (Full research paper)

11. Abdulaziz Almaslukh, **Amr Magdy**, Yongyi Liu. *Scalable Spatio-Temporal Top-k Community Interactions Query*. In Proceedings of the ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, **ACM SIGSPATIAL 2021**, November 2021. (Short research paper)

12. Mayur Patil, **Amr Magdy**. *LATEST: Learning-Assisted Selectivity Estimation Over Spatio-Textual Streams*. In Proceedings of the IEEE International Conference on Data Engineering, **IEEE ICDE 2021**, Online, April 2021. (Full research paper)

13. Laila Abdelhafeez, **Amr Magdy**, Vassilis J. Tsotras. *Scalable Spatial GroupBy Aggregations Over Complex Polygons*. In Proceedings of the ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, **ACM SIGSPATIAL 2020**, Online, November 2020. (Short research paper)

14. Abdulaziz Almaslukh, **Amr Magdy**. *Temporal Geo-Social Personalized Search Over Streaming Data*. In Proceedings of the ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, **ACM SIGSPATIAL 2019**, Chicago, IL, USA, November 2019. **(Selected among SIGSPATIAL Best Papers)** (Full research paper)

15. Rami Alghamdi, **Amr Magdy**, Mohamed F. Mokbel. *Towards A Unified Framework for Event Detection Applications*. In Proceedings of the International Symposium on Spatial and Temporal Databases, **SSTD 2019**, Vienna, Austria, August 2019. (Vision research paper)

16. Mohammad Jahanian, Toru Hasegawa, Yoshinobu Kawabe, Yuki Koizumi, **Amr Magdy**, Masakatsu Nishigaki, Tetsushi Ohki, K. K. Ramakrishnan. *DiReCT: Disaster Response Coordination with Trusted Volunteers*. In Proceedings of the International Conference on Information and Communication Technologies for Disaster Management, **ICT-DM 2019**, Paris, France, December 2019. **(Best Paper Award)** (Full research paper)

17. Abdulaziz Almaslukh and **Amr Magdy**. *Evaluating Spatial-Keyword Queries on Streaming Data*. In Proceedings of the ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems, **ACM SIGSPATIAL 2018**, Seattle, WA, USA, November 2018. (Full research paper)

18. **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)

19. 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)

20. **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)

21. **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)

22. **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)

23. **Amr Magdy**, Louai Alarabi, Saif Al-Harthi, 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. **(Shortlisted for 2024 10-Year Impact Award)** (Full systems paper)

24. 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

1. **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.

2. **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

1. Laila Abdelhafeez, Andrés C. Romero, **Amr Magdy**, Vassilis J. Tsotras. *Pyneapple-G: Scalable Spatial Grouping Queries*. In the Proceedings of the International Conference on Very Large Data Bases, **VLDB 2024**, Guangzhou, China, August 2024.

2. Yunfan Kang, Yongyi Liu, Hussah Alrashid, Akash Bilgi, Siddhant Purohit, Ahmed Mahmood, Sergio Rey, **Amr Magdy**. *Pyneapple-R: Scalable and Expressive Spatial Regionalization*. In Proceedings of the IEEE International Conference on Data Engineering, **IEEE ICDE 2024**, Utrecht, Netherlands, May 2024.

3. Abdulaziz Almaslukh, Laila Abdelhafeez, **Amr Magdy**. *DLEEL: Multi-Predicate Spatial Queries on User-generated Streaming Data*. In Proceedings of the IEEE International Conference on Data Engineering, **IEEE ICDE 2020**, Online, April 2020.

4. Yunfan Kang, Ziang Zhao, **Amr Magdy**, Win Cowger, Andrew Gray. *Scalable Multi-resolution Spatial Visualization for Anthropogenic Litter Data*. In Proceedings of the International ACM SIGSPATIAL GIS Conference, **ACM SIGSPATIAL 2019**, Chicago, IL, USA November 2019.

5. Coline Dony, **Amr Magdy**, Sergio Rey, Atsushi Nara, Thomas Herman, Michael Solem. *RPP for Geocomputation: Partnering on Curriculum in Geography and Computer Science*. In Proceedings of the International Conference on Research in Equity and Sustained Participation in Engineering, Computing, and Technology, **RESPECT 2019**, Minneapolis, MN, USA, 2019.

6. **Amr Magdy**, Mohamed F. Mokbel. *Demonstration of Kite: A Scalable Microblogs Data Management System.* In Proceedings of the IEEE International Conference on Data Engineering, **IEEE ICDE 2017**, San Diego, CA, USA, April 2017.

7. **Amr Magdy**, Louai Alarabi, Saif Al-Harthi, 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.

8. **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.

9. 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.

10. 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.

11. 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.

Book Chapters

1. **Amr Magdy**. *Query Processing: Computational Geometry*. Chapter in **Encyclopedia of Big Data Technologies**, Springer International Publishing, Editors: Sherif Sakr and Albert Zomaya, 2020.

2. **Amr Magdy**. *Query Processing: Computational Geometry*. Chapter in **Encyclopedia of Big Data Technologies**, Springer International Publishing, Editors: Sherif Sakr and Albert Zomaya, 2018.

3. 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

1. Mohamed Mokbel, Sohaib Ghani, Thanaa Ghanem, Mashaal Musleh, **Amr Magdy**. *System and Method for Data Visualization*. U.S. Patent and Trademark Office on June 30, 2015. Publication number: US20170004190A1.

2. Mohamed Fathalla Hassan Mokbel, **Amr Magdy Mahmoud Ahmed**. *System and Method for Microblogs Data Management*. Filed at U.S. Patent and Trademark Office on August 31, 2015. Publication number: US20160070754A1.

Edited Proceedings

1. **Amr Magdy**, Xun Zhou, Daniel B. Neill. *Special Issue on Analytics for Local Events and News*. **Springer GeoInformatica** 24(2): 267-268 (2020) https://doi.org/10.1007/s10707-020-00409-8

2. Panagiotis Bouros, **Amr Magdy**, Matthias Renz, Mohamed Sarwat, Andreas Züfle. *Proceedings of the Sixth International ACM SIGMOD Workshop on Managing and Mining Enriched Geo-Spatial Data*, **GeoRich, ACM SIGMOD 2020**, Portland, Oregon, USA, June 14, 2020. ISBN 978-1-4503-8035-5.

3. **Amr Magdy**, Coline Dony. *Proceedings of the 1st ACM SIGSPATIAL International Workshop on Geo-computational Thinking in Education*, **GeoEd, ACM SIGSPATIAL 2019**, Chicago, Illinois, USA, November 5, 2019. ISBN 978-1-4503-6952-7.

4. Haiquan Chen, Federico Iuricich, **Amr Magdy**. *Proceedings of the 3rd ACM SIGSPATIAL International Workshop on Analytics for Local Events and News*, **LENS, ACM SIGSPATIAL 2019**, Chicago, Illinois, USA, November 5, 2019. ISBN 978-1-4503-6958-9.

5. Sharad Mehrotra, **Amr Magdy**, Andreas Züfle, Liyue Fan. *Special Issue on Big Spatial Data*. **Frontiers in Big Data**, Data Mining and Management (2019) www.frontiersin.org/research-topics/8127/big-spatial-data

6. **Amr Magdy**, Xun Zhou, Liang Zhao, Yan Huang. *Proceedings of the 2nd ACM SIGSPATIAL International Workshop on Analytics for Local Events and News*, **LENS, ACM SIGSPATIAL 2018**, Seattle, WA, USA, November 6, 2018. ISBN 978-1-4503-6035-7.

7. **Amr Magdy**, Xun Zhou, Yan Huang. *Proceedings of the 1st ACM SIGSPATIAL International Workshop on Analytics for Local Events and News*, **LENS, ACM SIGSPATIAL 2017**, Redondo Beach, CA, USA, November 7, 2017. ISBN 978-1-4503-5500-1.

Technical Reports

1. Mohamed F. Mokbel, Mahmoud Attia Sakr, Li Xiong, Andreas Züfle, Jussara M. Almeida, Taylor Anderson, Walid G. Aref, Gennady L. Andrienko, Natalia V. Andrienko, Yang Cao, Sanjay Chawla, Reynold Cheng, Panos K. Chrysanthis, Xiqi Fei, Gabriel Ghinita, Anita Graser, Dimitrios Gunopulos, Christian S. Jensen, Joon-Sook Kim, Kyoung-Sook Kim, Peer Kröger, John Krumm, Johannes Lauer, **Amr Magdy**, Mario A. Nascimento, Siva Ravada, Matthias Renz, Dimitris Sacharidis, Cyrus Shahabi, Flora D. Salim, Mohamed Sarwat, Maxime Schoemans, Bettina Speckmann, Egemen Tanin, Yannis Theodoridis, Kristian Torp, Goce Trajcevski, Marc J. van Kreveld, Carola Wenk, Martin Werner, Raymond Chi-Wing

Wong, Song Wu, Jianqiu Xu, Moustafa Youssef, Demetris Zeinalipour, Mengxuan Zhang, Esteban Zimányi. *Mobility Data Science (Dagstuhl Seminar 22021)*. **Dagstuhl Reports** 12(1): 1-34 (2022)

Workshop Papers and Others

1. Yuanjie Zhuy, Hussah Alrashid, Song Bai, Chunhan Zhang, Ziliang Zhang, Zhengyi Qu, Reem Y. Ali, **Amr Magdy**. *On the Ecosystem of High-Definition (HD) Maps*. In Proceedings of the International Workshop on Data-Driven Smart Cities, **DASC 2024**, in conjunction with the IEEE International Conference on Data Engineering, **IEEE ICDE 2024**, Utrecht, Netherlands, May, 2024.

2. Hamada Aboubakr, **Amr Magdy**. *On Improving Toll Accuracy for COVID-like Epidemics in Underserved Communities Using User-generated Data*. In the ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems Workshops, **ACM SIGSPATIAL Workshops**, 2020.

3. Yunfan Kang, **Amr Magdy**. *HiDaM: A Unified Data Model for High-definition (HD) Map Data*. In Proceedings of the International Workshop on Data-Driven Smart Cities, **DASC 2020**, in conjunction with the IEEE International Conference on Data Engineering, **IEEE ICDE 2020**, Online, April, 2020.

4. **Amr Magdy**. *Microblogs: A Renewable Spatio-temporal Fortune*. **ACM SIGSPATIAL Special** 12(1): 41-52, 2020.

5. Ziang Zhao, Yunfan Kang, **Amr Magdy**, Win Cowger, and Andrew Gray. *A Data-driven Approach for Tracking Human Litter in Modern Cities*. In Proceedings of the International Workshop on Data-Driven Smart Cities, **DASC 2019**, in conjunction with the IEEE International Conference on Data Engineering, **IEEE ICDE 2019**, Macau, China, April, 2019.

6. Sergio Rey and **Amr Magdy**. *Open Source Geospatial Software: Challenges and Opportunities*. In **NSF Workshop** on GEOSPATIAL SOFTWARE: CONNECTING BIG DATA WITH GEOSPATIAL DISCOVERY AND INNOVATION, Los Angeles, CA, January, 2018.

7. **Amr Magdy**. *Scalable Microblogs Data Management*. In Proceedings of the **SIGMOD Ph.D. Symposium**, in conjunction with the ACM International Conference on Management of Data, **ACM SIGMOD 2016**, San Francisco, CA.

8. **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.

9. 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)

10. **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)

11. 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.

Student Advising

Ph.D. Students

- Laila Abdelhafeez, 2018-Present (Co-advised by Vassilis Tsotras).
- Yongyi Liu, 2020-Present.
- Alhassan Satii Alshareedah, 2023-Present.
- Yiyang Bian, 2024-Present.
- Ahmed Abdelmaguid, 2024-Present.
- Yunhan Chang, 2024-Present.

- Dr. Yunfan Kang, 2018-2023, Postdoc Researcher at the University of Illinois, Urbana-Champaign (UIUC)
  Thesis: Scalable and Expressive Spatial Analysis and Modeling.
- Dr. Hussah Alrashid, 2018-2023, Assistant Professor at Majmaah University
  Thesis: Towards a Scalable and Qualitative Spatial Regionalization.
- Dr. Abdelaziz Almaslukh, 2017-2020, Assistant Professor at King Saud University
  (Advised 2015-2017 by Vagelis Hristidis)
  Thesis: Scalable Temporal Queries on User-Generated Data.

M.Sc. Students

- Vishal Chinnam, 2024-Present.
- Tushar Baid, 2024-Present.
- Nikhil Mahendrakar, 2024-Present.
- Jatin Patwa, 2021.
- Yash Deshpande, 2021.
- Kexin Wang, 2021.
- Pranshu Shrivastava, 2021.
- Shamali Shinde, 2021.
- Anish Sekar, 2020.
- Ziang Zhao, 2019.
- Aparna Vivek Sarawadekar, 2024-Present.
- Harsha Devarapalli, 2024-Present.
- Priyanka Jadli, 2023.
- Rithika Ramasesha, 2021.
- Siddharth Shenoy, 2021.
- Zhuocheng Shang, 2021.
- Shashank Dahiya, 2021.
- Faisal Almaarik, 2021.
- Suchitra Pithavath, 2020.
- Zacharias Chasparis, 2018.

Undergraduate Students

- Aldo Estrado, 2023-2024, Intern at Amazon.
- Azka Khan, NSF Data Science Fellow, 2023.
- Dallas Carlson, NSF Data Science Fellow, 2023.
- Eric Ong, 2018-2019, Published in VLDBJ.
- Tiffany Cedeno, 2018.
- Abdelrahman Solyman, 2018.
- Samarth Srinivasa, NSF Data Science Fellow, 2023.
- Makena Grigsby, NSF Data Science Fellow, 2023.
- Celvin Lizama Pena, exploreCSR, 2021.
- Bai Carl, 2018.
- Hau Chen, 2018.

High and Middle School Students

- Marc Encarnacion, 2019-2020, AP Capstone project, Valley View High School, Moreno Valley, CA.
- Emma Shah, 2019-2020, Martin Luther King High School, won third place in RCOE Science Fair Expo.
- Dragon Rider Sean, 2019, Robosub team, FIRST LEGO League.