# Xiufeng Liu *Researcher/Assistant Professor*

- *Email:* xiuli@dtu.dk  •  *Phone:* +45-9351 1339
- *Address:* R125, Building 426, DTU, 2800 Kgs. Lyngby, Denmark
- *Homepage:* www.xiufengliu.dk  •  *Google Scholar:* https://goo.gl/7qMrt2

## RESEARCH INTERESTS

The primary goal of my research is to develop fundamental concepts and new solutions for big data analysis and management related to smart energy. My current work has concentrated on three key areas: Building scalable systems for big data analysis and management in the cloud; Using statistics, data mining and machine learning to extract information from large data sets to provide decision support; Developing synergy solutions in the related disciplines: energy, information systems and social science.

## EDUCATION

| | |
|---|---|
| **Aalborg University, Denmark** | *08/2008 – 05/2012* |
| PhD in Computer Science | |
| **Tsinghua University, China** | *09/2002 – 06/2015* |
| MSc in Software Engineering | |
| **Tsinghua University, China** | *09/1997 – 06/2001* |
| BSc in Computer Science | |

## WORK EXPERIENCE

| | |
|---|---|
| **Technical University of Denmark** | *01/2017 – Present* |
| Researcher/Assistant Professor, Department of Management Engineering | |
| **Technical University of Denmark** | *01/2015 – 12/2016* |
| Postdoctoral researcher, Department of Management Engineering | |
| **University of Waterloo, Canada** | *01/2013 – 12/2014* |
| Postdoctoral researcher, Department of Management Engineering | |
| **Aalborg University, Denmark** | *06/2012 – 12/2012* |
| Research Assistant, Department of Computer Science | |
| **Abo Akademic University, Finland** | *09/2006 – 07/2008* |
| Research Assistant, Department of Computer Science | |

## HONORS, AWARDS & GRANTS

- Roskilde Climate Innovation Fund (100,000 Danish Kroner), 2018.
- 2-year IBM Research Fellowship, 2013
- Best paper, The 18th International Conference on Extending Database Technology, 2015.
- 3-year PhD Research Fellowship, 2008

## SUPERVISION EXPERIENCE

**PhD Thesis**

- Benchmarking Residential Energy Consumption In Indonesia, Co-supervised with Prof. Per Severts Nielsen, 2016 – 2019

**Master Thesis**

- Ontology-based Big Dimension Design for Data Warehouse, 2011
- Data Warehousing and Data Warehouse Design, 2010

## SOFTWARE RELEASES

**Github (https://github.com/xiufengliu)**

1. CATool: A ready-to-use experiment tool for climate researchers to understand the pitfalls in adaptation decisions in behavioral economics, 2018.
2. IoTDashboard: An IoT dashboard system for collecting and visualizing indoor and outdoor climate data, 2017.
3. K-SC Clustering Algorithm on Spark, 2017.
4. CITIESData: A scalable smart city data management platform, 2017.
5. BigETL: A unified ETL platform of supporting various data processing technologies, including Spark, Hive, Hadoop, Python, Linux Shell script, etc, 2016.
6. DataGenerator-Cluster-Version: A parallel smart meter data generator on Spark, 2016.
7. SMAS: A smart meter data analytics system, 2015.
8. ETLMR: A Python-based Dimensional ETL Framework based on MapReduce, 2013.
9. All-RiTE: A Right-time ETL middle-ware Supporting Insert, Update and Delete Operations, 2013.
10. CloudETL: A Scalable Dimensional ETL for Hive, 2012.
11. 3XL: An efficient OWL/RDF Triple Store Supporting Bulk Operations, 2012.

## PUBLICATIONS (H-index: 12, Citations: 333+ per Google Scholar)

**Refereed Journal Papers**

1. P. Gianniou, X. Liu*, A. Heller, P. S. Nielsen, and C. Rode . Clustering-based Analysis for Residential District Heating Data. Journal of Energy Conversion & Management, vol 165, pp. 840–850, 2018.
2. X. Liu, P. S. Nielsen, and A. Heller. CITIESData: A Framework for Research Data Management for Smart CITIES. Journal of Knowledge and Information Systems (KAIS), 53(3): 699–722, 2017.
3. S. Khan, X. Liu, K. A. Shkil, and M. Alam. A Survey of Scholarly Data: From Big Data Perspective. Journal of Information Processing and Management (IPM), 53(4):923-944, 2017.
4. A. Heller, X. Liu, and P. Gianniou. A Science Cloud for Smart Cities Research. Energy Procedia 122: 679–684, 2017.
5. X. Liu, L. Golab, W. Golab, I. F. Ilyas, and S. Jin. Smart Meter Data Analytics: Systems, Algorithms and Benchmarking. ACM Transaction of Database System (TODS), 42(1), 2016.
6. X. Liu, P. S. Nielsen. An ICT-Solution for Smart Meter Data Analytics. Journal of Energy, 115(3):1710–1722, 2016.
7. X. Liu, N. Iftikhar, and P. S. Nielsen. Optimizing ETL by a Two-level Data Staging Method. International Journal of Data Warehousing and Mining (IJDWM), 12(3):32–50, 2016.
8. X. Liu, C. Thomsen, and T. B. Pedersen, ETLMR: A Highly Scalable Dimensional ETL Framework Based on MapReduce. TLDKS III, LNCS 7790, 8:1–31, 2013.
9. X. Liu, C. Thomsen, and T. B. Pedersen. MapReduce-based Dimensional ETL Made Easy (demo). PVLDB 5(12):1882–1885, 2012.
10. X. Liu, C. Thomsen, and T. B. Pedersen. 3XL: Supporting efficient operations on very large OWL Lite triple-stores. Journal of Information Systems, 36(4):765–781, 2011.
11. X. Liu. A Data Warehouse Solution for E-Government. International Journal of Research and Reviews in Applied Sciences, 4(1):120-128, 2010.
12. S. Kang and X. Liu. Online Model-based Testing Design Using the Qtronic Tool. Journal of Northeast Normal University (Natural Science Edition), 42(4):1–8, 2010.

**Refereed Conference Papers**

1. L. Liu, H. Huo, X. Liu, V. Palade .Recognizing Textual Entailment with Attentive Reading and Writing Operations. Accepted by the 23rd International Conference of Database Systems for Advanced Applications (DASFAA), 2018.
2. D. Ahlers, F. Kraemer, A. E. Braten, X. Liu, F. Anthonisen, P. Driscoll and J. Krogstie. Analysis and Visualization of Urban Emission Measurements in Smart Cities (demo). Proc. of the 21st International Conference on Extending Database Technology (EDBT), pp. 698–701, 2018.
3. A. Kewo, P. Manembu, P. S. Nielsen, and X. Liu. Modelling of electricity consumption in one of the Asia's most populous cities – Jakarta, Indonesia. Proc. of the 12th Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES), 2017.
4. H. Huo, X. Liu, D. Zheng, Z. Wu, S. Yu, L. Liu. Collaborative Filtering Fusing Label Features Based on SDAE. Proc. of ICDM, pp. 223–236, 2017.

5. X. Liu, P. S. Nielsen, A. Heller, and P. Gianniou. SciCloud: A Scientific Cloud and Management Platform for Smart City Data. Proc. of DEXA Workshop, pp. 27–31, 2017.

6. X. Liu, P. S. Nielsen, and A. Heller. An ICT-based Anomaly Detection Method for Smart Meter Data. Proc. of the 12th Conference on Sustainable Development of Energy, Water and Environment Systems (SDEWES), 2017.

7. N. Iftikhar, X. Liu, F. E. Nordbjerg, S. Danalachi, and J. H. Vollesen. A Scalable Smart Meter Data Generator Using Spark. Proc. of the 25th International Conference on Cooperative Information Systems, 2017.

8. X. Liu, and P. S. Nielsen. Air Quality Monitoring System and Benchmarking. Proc. of the 19th International Conference on Big Data Analytics and Knowledge Discovery (DaWaK), pp. 459–470, 2017.

9. P. Manembu, B. Welang, A. Lapu, A. Kewo, P. S. Nielsen, and X. Liu A Novel Smart Meter Controlling System with Dynamic IP Addresses. In Proc. of the 26th IEEE International Symposium on Industrial Electronics (ISIE 2017).

10. X. Liu, N. Iftikhar, P. S. Nielsen, and A. Heller. Online Anomaly Energy Consumption Detection Using Lambda Architecture. Proc. of the 18th International Conference on Big Data Analytics and Knowledge Discovery (DaWaK), pp. 193–209, 2016.

11. N. Iftikhar, X. Liu, F. E. Nordbjerg, and S. Danalachi. A Prediction-based Smart Meter Data Generator. Proc. of the 19th International Conference of Network-based Information Systems (NBIS), 2016.

12. H. Huo, X. Liu, J. Li, and H. Yang. A Weighted K-AP Query Method for RSSI based Indoor Positioning. Proc. of the 27th Australasian Database Conference (ADC), pp. 150–163, 2016.

13. X. Liu, Per Sieverts Nielsen. Streamlining Smart Meter Data Analytics. Proc. of the 10th Conference on Sustainable Development of Energy, Water and Environment Systems, SDEWES2015.0558,1–14, 2015.

14. N. Iftikhar, X. Liu, and F. E. Nordbjerg. Relational-Based Sensor Data Cleansing. Proc. of 19th East-European Conference on Advances in Databases and Information Systems (ADBIS), pp. 108–118, 2015.

15. X. Liu, N. Iftikhar. An ETL Optimization Framework Using Partitioning and Parallelization. Proc. of the 30th ACM/SIGAPP Symposium On Applied Computing (SAC), pp. 1015–1022, 2015.

16. X. Liu, L. Golab, I. F. Ilyas. SMAS: A Smart Meter Data Analysis System (demo). Proc. of the 31st International Conference on Data Engineering (ICDE), pp. 1476–1479, 2015.

17. X. Liu, L. Golab, W. Golab, Ihab F. Ilyas. Benchmarking Smart Meter Data Analytics. Proc. of the 18th International Conference on Extending Database Technology (EDBT), pp. 385–396, 2015 **(Best Paper)**.

18. X. Liu, N. Iftikhar, and X. Xie, Survey of Real-time Processing Systems for Big Data. Proc. of the 18th International Database Engineering & Applications Symposium (IDEAS), pp. 356–361, 2014.

19. X. Liu, C. Thomsen, and T. B. Pedersen, CloudETL: Scalable Dimensional ETL for Hive. Proc. of the 18th International Database Engineering & Applications Symposium (IDEAS), pp. 195–206, 2014.

20. X. Liu and N. Iftkhar. Ontology-based Big Dimension modeling in Data Warehouse Schema Design, Proc. of the 12th Business Information System (BIS), pp. 75–87, 2013.

21. X. Liu, C. Thomsen, and T. B. Pedersen. 3XL: An Efficient DBMS-Based Triple-Store. In Proc. of DEXA Workshops, pp. 284-288, 2012.

22. X. Liu, C. Thomsen, and T. B. Pedersen. ETLMR: A Highly Scalable Dimensional ETL Framework Based on MapReduce. Proc. of the 13th International Conference on Big Data Analytics and Knowledge Discovery (DaWaK), pp. 96–111, 2011.

23. X. Liu, C. Thomsen, and T. B. Pedersen. The ETLMR MapReduce-Based ETL Framework. Proc. of the 23rd Scientific and Statistical Database Management Conference (SSDBM), pp. 586–588, 2011.

**Technical Reports**

1. X. Liu, C. Thomsen, and T. B. Pedersen. ETLMR: A Highly Scalable Dimensional ETL Framework Based on MapReduce, TR-29, Department of Computer Science, Aalborg University, 2011.

2. X. Liu, C. Thomsen, and T. B. Pedersen. CloudETL: Scalable Dimensional ETL for Hadoop and Hive, TR-30, Department of Computer Science, Aalborg University, 2012.

3. X. Liu, D. Truscan, and L. Lilius. Online Testing of the ABOT Game Server Using the Qtronic Tool, Turku Centre for Computer Science, 2008.

**Posters**

1. D. Ahlers, F. Kraemer, A. E. Braten, X. Liu, F. Anthonisen, P. Driscoll and J. Krogstie. Analysis and Visualization of Urban Emission Measurements in Smart Cities, 2018.
2. X. Liu, Alfred Heller, P. S. Nielsen. SciCloud: A Scientific Cloud and Data Analysis Platform for Smart CITIES, 2017.
3. X. Liu, and P. S. Nielsen. An Urban Greenhouse Gas Emissions Dashboard, 2017.
4. X. Liu, P. S. Nielsen, and A. Heller. CITIESData: Towards Cloud Based Big Data Management for Smart Cities, 2017.
5. X. Liu, and P. S. Nielsen. Streamlining Meter Data Analytics, 2017.
6. X. Liu, L. Golab, and I. llyas. SMAS: A Smart Meter Data Analytics System, 2016.
7. X. Liu, C. Thomsen, and T. B. Pedersen. MapReduce-based Dimensional ETL Made Easy, 2012.

**PhD Thesis**

1. X.Liu. Data Warehousing Technologies for Large-scale and Right-time Data, defended on June 2012.

## PROFESSIONAL SERVICES

**Program Committee Member**

1. International conference of Internet of Things, Big Data and Security (IoTBG, 2016 – 2018)
2. International Symposium on Internet of Ubiquitous and Pervasive Things (IUPT 2017)
3. IEEE Electrical Power and Energy Conference (EPEC 2016)

**Reviewer for Conferences and Journals**

1. Journal of Data & Knowledge Engineering (DKE, 2017)
2. The VLDB Journal (VLDBJ, 2017)
3. IEEE Transaction of Big Data (2016)
4. Information Systems (2016, 2017)
5. IoTBG (2016 – 2018)
6. The 26th International Conference on Scientific and Statistical Database Management (SSDBM, 2014)
7. Proceedings of the VLDB Endowment (PVLDB, 2014)
8. ICDCS (2013)