

Lu-An Tang

Personal Information

Gender: Male Date of Birth: 04/08/1982

Email: tang18@uiuc.edu; leon.tang82@gmail.com;

Phone: 213-598-1884 Used Name: Lv-an Tang

Webpage: <https://netfiles.uiuc.edu/tang18/www/~LuAnTang.htm>

Expected Date of PhD: 05/2013

Institution: Computer Science Dept., University of Illinois at Urbana-Champaign

Advisor: Prof. Jiawei Han

RESEARCH INTERESTS

I have a broad interest in the areas of data mining, database and ubiquitous systems. My research focuses on the topics of geo-spatial data management and mining, cyber-physical systems and information networks. Currently I am working in research projects of data mining and data analysis on the sensor data from cyber-physical systems, trajectory pattern mining and intruder detection in wireless sensor networks.

Education and Intern Experience

[2008.05 - Present] Department of Computer Science, University of Illinois

PhD Candidate, Research Assistant, Advisor: Prof. Jiawei Han

[2011.05 – 2011.8] Microsoft Research Asia

Summer Internship, Mentors: Yu Zheng, Xing Xie Excellent Intern Award

[2010.05 – 2010.8] Microsoft Research Asia

Summer Internship Mentors: Xing Xie, Yu Zheng Excellent Intern Award

[2007.08 – 2008.05] Department of Computer Science, University of Southern California

PhD Student, supported by USC Annenberg Fellowship GPA: 4.0

[2004.09 – 2007.07] College of Engineering, Peking University, China

Master of Engineering Exempt of Entrance Examination

GPA: 3.92 Rank: Top 1 of the class

[2000.09 – 2004.07] Dept. of Mechanics and Engineering, Peking University, China

Bachelor of Engineering GPA: 3.32 Rank: 6 / 28

[2002.09 – 2004.07] Dept. of Computer Science, Peking University, China

Double Major: e-Business Bachelor of Management

Selected Publication

1. **Lu-An Tang**, Quanquan Gu, Xiao Yu, Jiawei Han, Thomas La Porta, Alice Leung, Tarek Abdelzaher, and Lance Kaplan, "IntruMine: Mining Intruders in Untrustworthy Data of Cyber-Physical Systems", SDM 2012, Apr. 2012.
2. **Lu-An Tang**, Yu Zheng, Jing Yuan, Jiawei Han, Alice Leung, Chih-Chieh Hung, and Wen-Chih Peng, "On Discovery of Traveling Companions from Streaming Trajectories", ICDE 2012, Apr. 2012.
3. **Lu-An Tang**, Xiao Yu, Sangkyum Kim, Jiawei Han, Wen-Chih Peng, Yizhou Sun, Hector Gonzalez, Sebastian Seith, "Multidimensional Analysis of Atypical Events in Cyber-Physical Data", ICDE 2012, Apr. 2012.
4. **Lu-An Tang**, Xiao Yu, Sangkyum Kim, Jiawei Han, Chih-Chieh Hung, and Wen-Chih Peng,

Tru-Alarm: Trustworthiness Analysis of Sensor Networks in Cyber-Physical Systems, *ICDM'10*, Sydney, Australia, Dec. 2010.

5. **Lu-an Tang**, Bin Cui, Hongyan Li, Gaoshan Miao, Dongqing Yang, Xinbiao Zhou: Effective variation management for pseudo periodical streams. *SIGMOD 2007*, Jun. 2007.

Current Projects

[2009.08 –Present] Multi-dimensional Data Analysis on Cyber Physical System

- Constructing a multi-dimensional analysis system for cyber physical systems, especially for the atypical traffic events, e.g., traffic jam, accidents and so on;
- A paper accepted by ICDE 2012 as full research paper.

[2010.05-08; 2011.05-08] Trajectory Search and Pattern Mining

- Studying the trajectory clusters and the member behaviors inside each trajectory;
- Designing the algorithms to retrieve trajectories by locations and find frequent members appearing continuously in trajectory clusters.
- A paper accepted by ICDE 2012 as full research paper, a paper published on SSTD 2011.

[2010.03 –Present] Intrusion Detection with Wireless Sensor Network Data

- Studying the problem of detecting trustworthy alarms and intruding objects from wireless sensor data;
- A paper published on ICDM 2010, an extending version is under review in Journal of Computer Science and System, a paper preparing to submit to SDM 2012.

Previous Projects

[2007.08 – 2008.05] Geo-Decision Making System (Module Developer)

- The target of this project is to build an information-rich and realistic geospatial system with temporal dimensions efficiently and accurately;
- Working out the algorithms for kNN query on land surface;
- One paper published in VLDB 2008.

[2005.09 – 2007.07] Data Stream based Clinical Information System (Core Developer)

- Building a system to process large volume and fast arriving data generated in Intensive Care Unit (in cooperation with the 3rd Hospital of Peking University, China);
- Leading the design and implementation of the variation management module;
- Publishing three papers, including a research paper on SIGMOD 2007.

[2004.02 – 2006.10] Web Information System auto-construction Environment (Team Leader)

- Building a system to automatically construct WIS from users' view, and to promote system flexibility and maintainability (Five papers published);
- Leading the design and implementation of an ontology construction module, coded over 25,000 lines on Eclipse (Java);
- Receiving the Second Prize in “IBM CUP” Campus Creation Design Competition 2005.

Honors & Awards

[2011.10] Microsoft Research Asia Excellent Summer Internship Award

[2010.12] ICDM 2011 Travel Award

[2010.10] Microsoft Research Asia Excellent Summer Internship Award

[2007.08 - 2008.05] USC Annenberg Fellowship

[2005–2006] Samsung Scholarship (0.1%, the highest scholarship of Peking University.
Only the best 24 students are awarded each year.)
Academic Innovation Award (1%)

[2005.12] Second Prize of “IBM CUP” Campus Creation Design Competition
(Team Leader, Ranked 3 in the 265 participants)

[2004–2005] Academic Innovation Award (1%) "May 4th" Scholarship (5%)

[2004.07] Excellent Final Thesis of Bachelor Degree

[2003 – 2004] Tri-Excellent Student Honor (5%)

Professional Services

Information coordinator for ACM Transaction on KDD, from year 2008 to 2011;

PC Member: Informatics 2011, Theory and Practice in Modern Computing (TPMC) 2012.

External Reviewer for: ACM TODS; VLDB 2008, 2009; KDD 2008, 2009, 2010, 2011, 2012;
ICDE 2009, 2010; SDM 2009, 2010, 2011, 2012; ICDM 2008, 2009, 2010; WWW 2010, 2011,
2012; GIS 2010, 2011, DEXA 2011, EDBT 2012 etc.

Publication by Year

1. **Lu-An Tang**, Quanquan Gu, Xiao Yu, Jiawei Han, Thomas La Porta, Alice Leung, Tarek Abdelzaher, and Lance Kaplan, "IntruMine: Mining Intruders in Untrustworthy Data of Cyber-Physical Systems", SDM 2012, Apr. 2012.
2. **Lu-An Tang**, Yu Zheng, Jing Yuan, Jiawei Han, Alice Leung, Chih-Chieh Hung, and Wen-Chih Peng, "On Discovery of Traveling Companions from Streaming Trajectories", ICDE 2012, Apr. 2012.
3. **Lu-An Tang**, Xiao Yu, Sangkyum Kim, Jiawei Han, Wen-Chih Peng, Yizhou Sun, Hector Gonzalez, Sebastian Seith, "Multidimensional Analysis of Atypical Events in Cyber-Physical Data", ICDE 2012, Apr. 2012.
4. **Lu-An Tang**, Yu Zheng, Xing Xie, Jing Yuan, Xiao Yu, Jiawei Han: Retrieving k-Nearest Neighboring Trajectories by a Set of Point Locations. SSTD 2011, Aug. 2011.
5. Xiao Yu, Ang Pan, **Lu-An Tang**, Zhenhui Li, Jiawei Han: Geo-Friends Recommendation in GPS-based Cyber-physical Social Network. ASONAM 2011, Jul. 2011.
6. **Lu-An Tang**, Xiao Yu, Sangkyum Kim, Jiawei Han, Chih-Chieh Hung, and Wen-Chih Peng, Tru-Alarm: Trustworthiness Analysis of Sensor Networks in Cyber-Physical Systems, ICDM'10, Sydney, Australia, Dec. 2010.
7. Zhenhui Li, Jiawei Han, Ming Ji, **Lu-An Tang**, Yintao Yu, Bolin Ding, Jae-Gil Lee, and Roland Kays, "MoveMine: Mining Moving Object Data for Discovery of Animal Movement Patterns", ACM Transactions on Intelligent Systems and Technology (ACM TIST) (Special Issue on Computational Sustainability), Aug. 2010.
8. Jiawei Han, Zhenhui Li, and **Lu-An Tang**, "Mining Moving Object, Trajectory and Traffic Data", DASFAA'10 Conference Tutorial, Japan, April 2010.
9. Zhenhui Li, Ming Ji, Jae-Gil Lee, **Lu-An Tang**, Yintao Yu, Jiawei Han, Roland Kays: MoveMine: mining moving object databases. (Demo) SIGMOD 2010, Jun, 2010.
10. Xiao Yu, **Lu-An Tang**, and Jiawei Han, "Filtering and Refinement: A Two-Stage Approach

- for Efficient and Effective Anomaly Detection", ICDM 2009, Dec. 2009.
11. **Lu-An Tang**, Bin Cui, Hong-Yan Li, Gao-Shan Miao, Dong-Qing Yang, and Xin-Biao Zhou: PGG: An online pattern based approach for stream variation management. Journal of Computer Science and Technology 23(4): 497--515 July 2008
 12. Cyrus Shahabi, **Lu-An Tang**, Songhua Xing: Indexing Land Surface for Efficient kNN Query. VLDB 2008.
 13. **Lv-an Tang**, Bin Cui, Hongyan Li, Gaoshan Miao, Dongqing Yang, Xinbiao Zhou: Effective variation management for pseudo periodical streams. SIGMOD 2007.
 14. **Lv-an Tang**, Hongyan Li, Baojun Qiu, Meimei Li, Jianjun Wang, Lei Wang, Bin Zhou, Dongqing Yang, Shiwei Tang: WISE: A Prototype for Ontology Driven Development of Web Information Systems. APWeb 2006.
 15. Xinbiao Zhou, Hongyan Li, Haibin Liu, Meimei Li, **Lv-an Tang**, Yu Fan, Zijing Hu: Monitoring Abnormal Patterns with Complex Semantics over ICU Data Streams. IWICPAS 2006.
 16. Meimei Li, Hongyan Li, **Lv-an Tang**, Baojun Qiu: DOPA: A Data-Driven and Ontology-Based Method for Ad Hoc Process Awareness in Web Information Systems. WISE 2006.
 17. **Lv-an Tang**, Hongyan Li, Zhiyong Pan, Shaohua Tan, Baojun Qiu, Shiwei Tang, Jianjun Wang: PODWIS: A Personalized Tool for Ontology Development in Domain Specific Web Information System. APWeb 2005.
 18. **Lv-an Tang**, Hongyan Li, Zhiyong Pan, Dongqing Yang, Meimei Li, Shiwei Tang, Ying Ying: An Ontology Based Approach to Construct Behaviors in Web Information Systems. WAIM 2005.
 19. Zijing Hu, Hongyan Li, Baojun Qiu, **Lv-an Tang**, Yu Fan, Haibin Liu, Jianlong Gao, Xinbiao Zhou: Using Control Theory to Guide Load Shedding in Medical Data Stream Management System. ASIAN 2005.
 20. Baojun Qiu, Hongyan Li, Zijing Hu, Dongqing Yang, **Lv-an Tang**, Jianjun Wang, Meimei Li, Shiwei Tang: General Consistency Management Within the Development of Ontology-Driven Web Information System. ASIAN 2005.