

Quan Yuan

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WORKING EXPERIENCE

09.2017– present	Facebook Inc. <ul style="list-style-type: none">• Research Scientist	United States
05.2015– 08.2017	University of Illinois Urbana-Champaign <ul style="list-style-type: none">• Postdoctoral Research Associate at Department of Computer Science• Mentor: <i>Prof. Jiawei Han</i>	United States
09.2014– 04.2015	Nanyang Technological University <ul style="list-style-type: none">• Project Officer at School of Computer Engineering	Singapore

EDUCATION BACKGROUND

08.2010– 09.2014	Nanyang Technological University <ul style="list-style-type: none">• Ph.D Degree in Computer Engineering• Supervisor: <i>Assoc. Prof. Gao Cong</i>• Thesis: Exploiting Spatial, Temporal, and Semantic Information for Point-of-interest Recommendation	Singapore
09.2006– 07.2010	Beijing University of Posts and Telecommunications <ul style="list-style-type: none">• Bachelor Degree in Computer Engineering	China

RESEARCH INTERESTS

My main research interests include Data Mining, Machine Learning, and Information Retrieval. I am particularly interested in:

- Behavior modeling for social media users;
- Recommender systems;
- Text mining and natural language processing.

PUBLICATION & SUBMISSION LISTS

- [1] **Q. Yuan**, J. Shang, X. Cao, C. Zhang, X. Geng, and J. Han. **Detecting Multiple Periods and Periodic Paerns in Event Time Sequences**. In *CIKM, to be published*, 2017
- [2] M. Liu, Z. Liu, C. Zhang, K. Zhang, **Q. Yuan**, T. Hanratty, and J. Han. **Urbanity: A System for Interactive Exploration of Urban Dynamics from Streaming Human Sensing Data**. In *CIKM, to be published*, 2017
- [3] C. Zhang, **Q. Yuan**, and J. Han. **Towards Space and Time Coupled Social Media Analysis**. *CIKM tutorial*, 2017
- [4] C. Zhang, K. Zhang, **Q. Yuan**, F. Tao, L. Zhang, T. Hanratty, L. Kaplan, and J. Han. **ReAct: Recency-Aware Urban Activity Modeling from Geo-Tagged Social Media Streams**. In *SIGIR*, pages 245–254, 2017
- [5] **Q. Yuan**, C. Zhang, and J. Han. **A Survey on Spatiotemporal and Semantic Data Mining**. *Trends in Spatial Analysis and Modelling, to be published*, 2017
- [6] C. Zhang, L. Liu, D. Lei, **Q. Yuan**, H. Zhuang, T. Hanratty, and J. Han. **TrioVecEvent: Embedding-Based Online Local Event Detection in Geo-Tagged Tweet Streams**. pages 595–604, 2017
- [7] C. Yang, L. Bai, C. Zhang, **Q. Yuan**, and J. Han. **Bridging Collaborative Filtering and Semi-Supervised Learning: A Neural Approach for POI recommendation**. In *KDD*, pages 1245–1254, 2017
- [8] **Q. Yuan**, W. Zhang, C. Zhang, X. Geng, G. Cong, and J. Han. **PRED: Periodic Region Detection for Mobility Modeling of Social Media Users**. In *WSDM*, pages 263–272, 2017

- [9] K. Zhao, Q. Yuan, and G. Cong. **Spatio-temporal topic detection from social media**. *Encyclopedia of Social Network Analysis and Mining*, pages 1–9, 2017
- [10] C. Zhang, D. Lei, Q. Yuan, H. Zhuang, L. Kaplan, S. Wang, and J. Han. **GeoBurst+: Effective and Real-Time Local Event Detection in Geo-Tagged Tweet Streams**. *TIST*, to be published, 2017
- [11] Y. Liu, P. N. T. Anh, G. Cong, and Q. Yuan. **An Experimental Evaluation of Point-of-interest Recommendation in Location-based Social Networks**. *PVLDB*, 10(10):1010–1021, 2017
- [12] S. Zhao, M. Jiang, Q. Yuan, C. Zhai, and T. Liu. **ContextCare: Incorporating Contextual Information Networks to Representation Learning on Medical Forum Data**. In *IJCAI*, pages 3497–3503, 2017
- [13] C. Zhang, Q. Yuan, and J. Han. **Bringing Semantics to Spatiotemporal Data Mining: Challenges, Methods, and Applications**. *ICDE tutorial*, 2017
- [14] C. Zhang, K. Zhang, Q. Yuan, H. Peng, Y. Zheng, T. Hanratty, S. Wang, and J. Han. **Regions, Periods, Activities: Uncovering Urban Dynamics via Cross-Modal Representation Learning**. In *WWW*, pages 361–370, 2017
- [15] K. Zhao, Y. Liu, Q. Yuan, L. Chen, Z. Chen, and G. Cong. **Towards Personalized Maps: Mining User Preferences from Geo-textual Data**. *PVLDB*, 9(13):1545–1548, 2016
- [16] W. Zhang, Q. Yuan, J. Han, and J. Wang. **Collaborative Multi-Level Embedding Learning from Reviews for Rating Prediction**. In *IJCAI*, pages 2986–2992, 2016
- [17] C. Zhang, K. Zhang, Q. Yuan, L. Zhang, T. Hanratty, and J. Han. **GMove: Group-Level Mobility Modeling Using Geo-Tagged Social Media**. In *KDD*, pages 1305–1314, 2016
- [18] C. Zhang, G. Zhou, Q. Yuan, H. Zhuang, Y. Zheng, L. M. Kaplan, S. Wang, and J. Han. **GeoBurst: Real-Time Local Event Detection in Geo-Tagged Tweet Streams**. In *SIGIR*, pages 513–522, 2016
- [19] Q. Yuan, G. Cong, K. Zhao, Z. Ma, and A. Sun. **Who, Where, When and What: A Non-parametric Bayesian Approach to Context-aware Recommendation and Search for Twitter Users**. *TOIS*, 33(1):2, 2015
- [20] X. Li, T. N. Pham, G. Cong, Q. Yuan, X. Li, and S. Krishnaswamy. **Where You Instagram?: Associating Your Instagram Photos with Points of Interest**. In *CIKM*, pages 1231–1240, 2015
- [21] S. Feng, X. Li, Y. Zeng, G. Cong, Y. M. Chee, and Q. Yuan. **Personalized Ranking Metric Embedding for Next New POI Recommendation**. In *IJCAI*, pages 2069–2075, 2015
- [22] Z. Ma, A. Sun, Q. Yuan, and G. Cong. **A Tri-role Topic Model for Domain-specific Question Answering**. In *AAAI*, pages 224–230, 2015
- [23] K. Zhao, G. Cong, Q. Yuan, and K. Q. Zhu. **SAR: A Sentiment-aspect-region Model for User Preference Analysis in Geo-tagged Reviews**. In *ICDE*, pages 675–686, 2015
- [24] Q. Yuan, G. Cong, and A. Sun. **Graph-based Point-of-interest Recommendation with Geographical and Temporal Influences**. In *CIKM*, pages 659–668, 2014
- [25] Z. Ma, A. Sun, Q. Yuan, and G. Cong. **Tagging Your Tweets: A Probabilistic Modeling of Hashtag Annotation in Twitter**. In *CIKM*, pages 999–1008, 2014
- [26] Q. Yuan, G. Cong, and C. Lin. **COM: A Generative Model for Group Recommendation**. In *KDD*, pages 163–172, 2014
- [27] B. Liu, Q. Yuan, G. Cong, and D. Xu. **Where Your Photo is Taken: Geolocation Prediction for Social Images**. *JASIST*, 65(6):1232–1243, 2014
- [28] Q. Yuan, G. Cong, Z. Ma, A. Sun, and N. Magnenat-Thalmann. **Who, Where, When and What: Discover Spatio-temporal Topics for Twitter Users**. In *KDD*, pages 605–613, 2013
- [29] Q. Yuan, G. Cong, Z. Ma, A. Sun, and N. Magnenat-Thalmann. **Time-aware Point-of-interest Recommendation**. In *SIGIR*, pages 363–372, 2013
- [30] X. Cao, G. Cong, B. Cui, C. S. Jensen, and Q. Yuan. **Approaches to Exploring Category Information for Question Retrieval in Community Question-answer Archives**. *TOIS*, 30(2):7, 2017
- [31] Z. Ma, A. Sun, Q. Yuan, and G. Cong. **Topic-driven Reader Comments Summarization**. In *CIKM*, pages 265–274, 2012
- [32] Q. Yuan, G. Cong, A. Sun, C. Lin, and N. Magnenat-Thalmann. **Category Hierarchy Maintenance: A Data-driven Approach**. In *SIGIR*, pages 791–800, 2012

- [33] Q. Yuan, G. Cong, and N. Magnenat-Thalmann. **Enhancing Naive Bayes with Various Smoothing Methods for Short Text Classification**. In *WWW(Companion Volume)*, pages 645–646, 2012
- [34] Q. Yuan, X. Ren, W. He, C. Zhang, C.-Y. Lin, H. Ji, and J. Han. **Open-Schema Event Profiling for Massive News Corpora**. *Submitted to WSDM*, 2018

REPRESENTATIVE RESEARCH PROJECTS

- 05.2017–
present | **Recurrent Neural Network-based Location Prediction**
Developed an Recurrent Neural Network-based model to predict user mobilities by exploiting their long term and short term trajectories, traveling distances, visiting times and social media posts. Recurrent neural networks, attention and multi-task techniques were used. Our model outperformed state-of-the-art baselines by over 25% w.r.t. prediction accuracy.
- 06.2016–
03.2017 | **News Event Schema Induction and Event Profiling**
Developed 2 models: (1) a *Hierarchical Dirichlet Process* based model to identify events and event types from news corpus (2) a *graph embedding* based model to extract key facts (*a.k.a.* slots, *e.g.*, buyer, price) and their patterns for each event type (*e.g.*, business acquisitions). Based on the slot and their patterns extracted, each event was profiled by a set of slot-value pairs to facilitate news reading and digesting. This work has been submitted to EMNLP 2017 conference. Several Natural Language Processing techniques (*e.g.*, NER, SRL) and toolkits (*e.g.*, Stanford CoreNLP, C-AMR) were used. This work has been submitted to the WSDM 2018 conference.
- 11.2015–
01.2016 | **Periodic Region Detection for Mobility Modeling of Social Media Users**
Generated a *Bayesian non-parametric* model to discover periodic mobility patterns by jointly modeling the geographical and temporal information, predicting a user’s location at any given time. Our model reduced the error distance of the state-of-the-art location prediction method by more than 65%. This work was published in the WSDM 2017 conference.
- 04.2014–
07.2014 | **Context-aware Ranking for Twitter Users**
Created the first model that portraits a user’s mobility behavior from user, spatial, temporal, and semantic aspects, under the framework of *Hierarchical Dirichlet Process*. Given any of the four aspects of a user *e.g.*, time and user, the model was able to rank the rest, *e.g.*, ranking tweets for users based on location, time and semantic topics, and predict potential customers for companies. This work was published in ACM Transaction of Information System 2015. Its preliminary work was published in KDD 2013 conference, and has been used as the backbone algorithm of the advertising company [Optimate Co.](#)
- 08.2013–
12.2013 | **Recommender System for Groups of Users**
Constructed a *Topic Model* based approach to model the generative process of group activities, and therefore to recommend items for groups of users. Our model took into account users’ topical preferences, influences, content information of items. It outperformed state-of-the-art baselines by over 35% w.r.t. recommendation accuracy. This work was published in the KDD 2014 conference.

PROFESSIONAL ACTIVITIES

- 08.2013–
11.2013 | **Research Intern**
 - Knowledge Mining Group, Microsoft Research China
 - Mentor: *Dr. Chin-Yew Lin*
 - Research Topic: Recommender System for Groups of Users
- 07.2009–
06.2010 | **Research Intern**
 - Data and Information Management Group, Peking University China
 - Supervisor: *Prof. Bin Cui*
 - Research Topic: Advisor Recommender System for Undergraduate Students
- 10.2014–
present | **Reviewer**
 - ICDE ’18, CIKM ’17, ADMA ’17, APWeb-WAIM ’17, CCL ’17, IJCIS ’17, JASIST ’17, DSAA ’16, TKDE ’16, ’15, TOIS ’16, KAIS ’17, ’16, IPM ’15, WWWJ ’16, NEUCOM ’15, PMC ’15, PRL ’14, JISE ’16, ’15, ’14, FCS ’16, JCST ’16, T-ASE ’16, TSC ’17, ’16, Tii ’17
- 05.2011–
present | **External Reviewer**
 - KDD ’15, ’14, ’13, WWW ’14, ’13, WSDM ’15, SIGMOD ’16, PVLDB ’13, ICDE ’16, ’12, ICDM ’13, ’12, CIKM ’14, ’13, ’12, ’11, SDM ’14, ’13, RecSys ’16, DASFAA ’12, PAKDD ’13, ’12, TOIST ’12, NAACL-HLT ’12, WAIM ’14

TECHNOLOGY DISCLOSURES

10.2015	Who, Where, When and What: A Non-parametric Bayesian Approach to Context-aware Recommendation and Search for Twitter Users <ul style="list-style-type: none">• Inventors: Quan Yuan and Gao Cong	Ref. No.: TD-151-15
12.2013	Time-aware Point-of-interest Recommendation <ul style="list-style-type: none">• Inventors: Quan Yuan and Gao Cong• Licensed to: TechBiz Xccelerator Pte Ltd.	Ref. No.: TD-040-14
12.2013	Who, Where, When and What: Discover Spatio-temporal Topics for Twitter Users <ul style="list-style-type: none">• Inventors: Quan Yuan, Gao Cong and Aixin Sun• Licensed to: TechBiz Xccelerator Pte Ltd.	Ref. No.: TD-039-14

SKILLS

- Programming Language: Python, Java, C++
- Language: Mandarin (native), English (fluent)