

Yaguang Li

CONTACT INFORMATION

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RESEARCH INTERESTS

Machine learning, structured sequence modeling with graph recurrent neural network with applications in traffic forecasting

EDUCATION

University of Southern California, Los Angeles, California, USA

Department of Computer Science

Ph.D., Computer Science, Aug. 2014 - Present, GPA: 3.93/4.0

- Advisors: Cyrus Shahabi, Yan Liu

University of Chinese Academy of Sciences, Beijing, China

Institute of Software

M.S in Computer Science, Sep. 2011 - Jul. 2014, Ranked Top 1%

- Advisor: Zhiming Ding

University of Science and Technology Beijing, Beijing, China

Department of Computer Science

B.Eng in Computer Science, Sep. 2007 - Jul. 2011, GPA: 3.75/4.0

- Advisor: Xucheng Yin

CONFERENCE PUBLICATIONS

Yaguang Li*, Rose Yu*, Ugur Demiryurek, Cyrus Shahabi, Yan Liu (*Equal Contribution). Deep Learning: A Generic Approach for Extreme Condition Traffic Forecasting. To Appear *Proceedings of the Seventeenth SIAM International Conference on Data Mining (SDM)*, 2017, To Appear

Yaguang Li, Han Su, Ugur Demiryurek, Bolong Zheng, Tieke He, Cyrus Shahabi. PaRE: A System for Personalized Route Guidance. *Proceedings of the 26th International Conference on World Wide Web (WWW)*, 2017, To Appear

Yaguang Li, Han Su, Ugur Demiryurek, Bolong Zheng, Kai Zeng, and Cyrus Shahabi. PerNav: A Route Summarization Framework for Personalized Navigation. *ACM International Conference on Management of Data (demonstration) (SIGMOD)*, 2016

Mohammad Asghari, Dingxiong Deng, Cyrus Shahabi, Ugur Demiryurek, **Yaguang Li**. Price-aware Real-time Ridesharing at Scale - An Auction-based Approach. *International Conference on Advances in Geographic Information Systems (ACM SIGSPATIAL GIS)*, 2016

Yaguang Li, Dingxiong Deng, Ugur Demiryurek, Cyrus Shahabi, Siva Ravada. Towards Fast and Accurate Solutions to Vehicle Routing in a Large-Scale and Dynamic Environment. *14th International Symposium on Spatial and Temporal Databases (SSTD)*, 2015

Kuiwen Liu, **Yaguang Li**, Zhiming Ding, Shuo Shang, Kai Zheng. Benchmarking big data for trip recommendation. *International Conference on Computer Communication and Networks (ICCCN)*, 2014

Yaguang Li, Chengfei Liu, Kuiwen Liu, Jiajie Xu, Fengcheng He, Zhiming Ding. On Efficient Map-matching According to Intersections You Pass By. *International Conference on Database and Expert*

Systems Applications (DEXA), 2013

Kuien Liu, Bin Yang, Shuo Shang, **Yaguang Li**, Zhiming Ding. MOIR/uots: Trip recommendation with user oriented trajectory search. *International Conference on Mobile Data Management (demonstration)* (MDM), 2013

Kuien Liu, **Yaguang Li**, Fengcheng He, Jiajie Xu, Zhiming Ding. Effective Map-matching on the Most Simplified Road Network. *International Conference on Advances in Geographic Information Systems* (ACM SIGSPATIAL GIS) 2012, **Contest Paper**

JOURNAL
PUBLICATIONS

Zhiming Ding, Bin Yang, Ralf Hartmut Güting, **Yaguang Li**. Network-Matched Trajectory-Based Moving-Object Database: Models and Applications. *IEEE Transactions on Intelligent Transportation Systems* (TITS), 2015

WORKSHOPS
PUBLICATIONS

Rose Yu, **Yaguang Li**, Cyrus Shahabi, Ugur Demiryurek, Yan Liu. Extreme Traffic Forecasting: A Deep Learning Approach. Poster accepted to *ACM SIGKDD Conference on Knowledge Discovery and Data Mining*(KDD) workshop on Mining and Learning from Time Series , 2016

Kuien Liu, **Yaguang Li**, Jian Dai, Shuo Shang, Kai Zheng. Compressing large scale urban trajectory data. *International Workshop on Cloud Data and Platforms* (CloudDP@EuroSys), 2014

Yaguang Li, Kuien Liu, Jiajie Xu, Fengcheng He. An Efficient Map-Matching Mechanism for Emergency Scheduling and Commanding. *International Conference on Web-Age Information Management* (WAIM) Workshops, 2013

EMPLOYMENT

University of Southern California, Los Angeles, CA, US

Research Assistance

Aug. 2014 - Present

- Proposed novel mixture architecture based on long short term memory (LSTM) unit and auto-encoder for traffic forecasting in extreme conditions, e.g., post-accident, the model achieved 30%-50% error reduction and the work was published on the SIAM International Conference on Data Mining 2017.
- Proposed personalized route summarization framework that can generate more concise and intuitive navigation instructions based on users knowledge, result was published in top tier conference, ACM SIGMOD 2016, WWW 2017.
- Proposed efficient local search based algorithm for vehicle routing problem on time-dependent road network, result was published in SSTD 2015.

Google Inc., New York, NY, US

Software Engineering Intern

May 2016 - Aug. 2016

- Designed and implemented framework to generate high quality business information (that will be displayed on Google Maps) from various low-quality data sources, e.g., street view image, untrusted third-party websites. This framework has generated over 100K pieces of high quality business information.
- Designed and implemented deep neural network based model to predict whether a website is the authority website of a small business. The AUC score of the model was greater than 0.96.

Google Inc., Montreal, Quebec, Canada

Software Engineering Intern

May 2015 - Aug. 2015

- Designed and implemented video summarization algorithm that automatically selects interesting frames based on audio, visual and motion information. The results showed that our method consistently outperforms baseline methods, e.g., k-means and uniform sampling based ones, in terms of attractiveness and informativeness.

- Developed tool that converts video to deck of slides with audio based on the video summarization algorithm. The resulting videos have extremely low bitrate (<40kbit/s) and reasonable good image quality which makes them suitable for video preview in poor Internet conditions.

Chinese Academy of Sciences, Beijing, China

Research Assistance

Aug. 2012 - Jul. 2014

- Contributed to many projects funded by National Natural Science Foundation of China (NSFC) on spatial-temporal data management.
- Proposed traffic analysis model based on network matched GPS trajectories that achieved higher accuracy with less storage and communication cost. The result was published in a top-tier journal (IEEE Transactions on Intelligent Transportation Systems).

Startup: Weidanci (weidanci.com), Beijing, China

Technical Leader

Sep. 2012 - Jun. 2014

- Weidanci is a multimedia-based dictionary where explanations are contributed by users (like Wikipedia). It supports multiple platforms including Android, iOS and Web, serving more than 20K registered users.
- Designed the architecture of the whole product; developed the website and part of the Android application.

TEACHING

Geospatial Information Management (CSCI 587)

Fall 2015, Fall 2016

Teaching assistant: Advised 35 course projects; delivered several lectures; designed exams and organized weekly Q/A discussion.

ACADEMIC SERVICE

Web Chair, International Conference on Web Search and Data Mining (WSDM), 2018

External Review, International Conference on Very Large Databases (VLDB), 2017

Reviewer, IEEE Transactions on Intelligent Transportation Systems (TITS), 2016

External Review, International Conference on Very Large Databases (VLDB), 2016

External Reviewer, IEEE International Conference on Distributed Computing Systems (ICDCS), 2016

External Reviewer, ACM International Conference on Management of Data (SIGMOD), 2015

SELECTED AWARDS
AND HONORS

Annenberg Graduate Fellowship, University of Southern California, 2014-Present

Outstanding Graduate, University of Chinese Academy of Sciences, 2014

Pivot of Merit Student, University of Chinese Academy of Sciences, 2014

National Scholarship, China, 2011, 2014

Third Place in ACM SIGSPATIAL GIS CUP, 2012

Outstanding University Graduate, Beijing, China, 2011