Yu Yang

Personal Information

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Research Interest

- Broadly interested in designing algorithms and applications for mobile, sensing and networked systems in the scope of smart cities.
- Focused on mobility modeling at large scales with hybrid sensor networks by coordinating the advantages of mobile sensors and stationary sensors.

Education

- **Rutgers University** *Piscataway, NJ*
  Ph.D. student in Computer Science *Sep. 2017 – Present*
- **Rutgers University** *Piscataway, NJ*
  Master of Science in Computer Science *Sep. 2015 – Jun. 2017*
- **Northeastern University** *Shenyang, China*
  Bachelor of Engineering in Software Engineering *Sep. 2011 – Jul. 2015*

Publications

- **Yu Yang**, Zhihan Fang, Xiaoyang Xie, Fan Zhang, Yunhuai Liu and Desheng Zhang.
  From Fewer to More: Last-Mile Vehicular Mobility Modeling based on Heterogeneous Sensor Networks.
  Under Submission.
- **Yu Yang**, Shui Wang, Fan Zhang, Yunhuai Liu, Desheng Zhang.
  TransMo: Transferring Vehicular Mobility Characterization between Cities.
  Under Submission.
- Zhihan Fang, Xiaoyang Xie, **Yu Yang**, Fan Zhang, Yunhuai Liu, Desheng Zhang.
  MoCha: Nationwide Vehicular Mobility Characterization For Usage-based Insurance.
  Under Submission.
- Zhihan Fang, **Yu Yang**, Shui Wang, Boyang Fu, Zixing Song, Fan Zhang, Desheng Zhang.
  MAC: Measuring the Impacts of Anomalies on Travel Time of Multiple Transportation Systems
  In ACM Proceedings on Interactive, Mobile, Wearable & Ubiquitous Technologies (**ACM IMWUT**) (Major Revision).
- **Yu Yang**, Zhihan Fang, Xiaoyang Xie, Fan Zhang, Yang Wang, Desheng Zhang.
  VeMo: Enabling Transparent Vehicular Mobility Modeling at Individual Levels with Full Penetration.
  In ACM Conference on Mobile Computing & Networking (**ACM MobiCom'19**).
- Xiaoyang Xie, **Yu Yang**, Zhihan Fang, Fan Zhang, Fan Zhang, Guang Wang, Yunhuai Liu, Desheng Zhang.
  coSense: Collaborative Urban-Scale Vehicle Sensing based on Heterogeneous Fleets.
  In ACM Proceedings on Interactive, Mobile, Wearable & Ubiquitous Technologies (**ACM IMWUT**) (**UbiComp 2019**).
- **Yu Yang**, Fan Zhang, Desheng Zhang.
  SharedEdge: GPS-Free Fine-Grained Travel Time Estimation in State-Level Highway Systems.
  In ACM Proceedings on Interactive, Mobile, Wearable & Ubiquitous Technologies (**ACM IMWUT**) (**UbiComp 2018**).

- Ruilin Liu, **Yu Yang**, Daehan Kwak, Desheng Zhang, Liviu Iftode, Badri Nath.
  Your Search Path Tells Others Where to Park: Towards Fine-Grained Parking Availability Crowdsourcing Using Parking Decision Models.
  In ACM Proceedings on Interactive, Mobile, Wearable & Ubiquitous Technologies (**ACM IMWUT**) (**UbiComp 2017**).
- Ruiyun Yu, **Yu Yang**, Leyou Yang, Guangjie Han, Oguti Ann Move.
  RAQ-a random forest approach for predicting air quality in urban sensing systems.
  In **Sensors** 2016.

Research Projects

- **Large Scale Mobility Modeling with Hybrid Sensor Networks (Ongoing)**
  - Aiming to model large scale vehicular mobility with mobile sensors and stationary sensors.
  - Coordinating the advantages of hybrid sensors to achieve fine-grained vehicle-based sensing with high penetration rates.
  - Case Study 1: Estimated the fine-grained travel time in highway systems with end-to-end travel time observations from toll stations. (UbiComp'18)
  - Case Study 2: Predicted the real-time locations of all the vehicles with only sparse observations on highways systems. (MobiCom'19)
  - Case Study 3: Transferred the mobility characteristics in a new city without service coverage by utilizing both inter-city and intra-city correlation. (Under Submission)
  - Case Study 4: Predicted the final destination of vehicles without any equipped mobile sensor after leaving the stationary sensor coverage by utilizing small amount of data from other vehicles. (Under Submission)
- **Infrastructure-free Parking Availability Crowdsourcing**
  - Aimed to estimate the availability of all the parking spots utilizing parking search paths. (UbiComp'17)
  - Modeled the parking decision model of drivers with multiple investigated features.
  - Estimated the parking available of background parking spots with the parking decision model
  - Designed an algorithm to find the optimal search path to minimize users total travel time.
- **Urban Air Quality Sensing**
  - Aimed to predict the fine-grained air quality in the urban area. (Sensors'16)
  - Designed an algorithm to predict urban air quality in Shenyang City using data from air quality monitoring stations, meteorology data, traffic report and point of interest data.

Honors

- **May, 2017** Outstanding Publication Award, Department of Computer Science, Rutgers University.
- **May, 2017** Outstanding Project Award, Department of Computer Science, Rutgers University.
- **April, 2014** Excellent Student Scholarship, Northeastern University
- **April, 2013** Excellent Student of Software College, Northeastern University

Teaching Experiences (As A Teaching Assistant)

- **CS112: Data Structures** Fall'18, Fall'19
- **CS314: Principles of Programming Languages** Spring'18
- **CS206: Introduction to Discrete Structures II** Fall'17
- **CS111: Introduction to Computer Science** Summer'17, Summer'18

Professional Activities

- **Reviewer** ACM Proceedings on Interactive, Mobile, Wearable & Ubiquitous Technologies (**IMWUT**)