Yu Yang

Email: yu.yang@rutgers.edu **URL:** https://www.yyang.site **Advisor:** Desheng Zhang

OBJECTIVE

A tenure-track faculty position in a leading research university with a strong CS or Information Science program.

RESEARCH INTERESTS

- Broadly interested in the areas of **big data** and **cyber-physical systems** (CPS) by a technical integration of algorithm, human, and system with emphases on data-intensive urban CPS.
- Focused on the **human behavior analysis and learning** driven by rich data collected from urban CPS and state-of-the-art machine learning techniques; applied learned human behavior knowledge back to optimize and improve CPS.

EDUCATION

Rutgers University, USA — Sep. 2017 - May 2021 (Expected)
Ph.D. in Computer Science

Rutgers University, USA — Sep. 2015 - May 2017
Master of Science in Computer Science — **with Outstanding Awards**

Northeastern University, China — September 2015 - May 2017
Bachelor of Engineering in Software Engineering — **with Excellent Thesis Award**

EMPLOYMENT

Research Assistant — Sep. 2019 - Present
Rutgers University, USA

Research Intern — May. 2019 - Sep 2019
Local Services BU, Alibaba Group

Teaching Assistant — Sep. 2017 - May 2019
Rutgers University, USA

HONORS & AWARDS

- UbiComp Community Audience Award for Best-in-Session Presentation, 2020
- Outstanding Publication Award, Rutgers University, 2017
- Outstanding Project Award, Rutgers University, 2017
- Excellent Thesis Award, Northeastern University, 2015
- Excellent Student Scholarship, Northeastern University, 2014
- Excellent Student of Software College, Northeastern University, 2013

PUBLICATIONS

Conference Papers

[1] **NSDI'21**
Ding Yi, Ling Liu, **Yu Yang**, Yunhuai Liu, Tian He, Desheng Zhang.
A Lifetime Story of a 3-Year-Old Operational Wireless Beacon System in the Wild
In the 18th USENIX Symposium on Networked Systems Design and Implementation

[2] **MobiCom'20**
Yu Yang, Ding Yi, D. Yuan, G. Wang, X. Xie, Yunhuai Liu, Tian He, Desheng Zhang.
Transparent Indoor Localization with Uncertain Human Participation for Instant Delivery
In the 26th Annual International Conference on Mobile Computing and Networking

[3] **UbiComp'20**
Yu Yang, Zhihan Fang, Xaoyang Xie, Fan Zhang, Yunhuai Liu, Desheng Zhang.
Extending Coverage of Stationary Sensing Systems with Mobile Sensing Systems
In the ACM International Joint Conference on Pervasive & Ubiquitous Computing
UbiComp Community Audience Award

[4] **UbiComp'20**
Zhou Qin, Fang Cao, **Yu Yang**, Shuai Wang, Yunhuai Liu, Chang Tan, Desheng Zhang.
CellPred: A Behavior-aided Scheme for Cellular Data Usage Prediction
In the ACM International Joint Conference on Pervasive & Ubiquitous Computing

[5] **MobiCom'19**
Yu Yang, Xaoyang Xie, Zhihan Fang, Fan Zhang, Yang Wang, Desheng Zhang.
Enabling Transparent Vehicular Mobility Modeling at Individual Levels with Full Penetration
In the 25th Annual International Conference on Mobile Computing and Networking

[6] **UbiComp'19**
Zhihan Fang, **Yu Yang**, Shuai Wang, Boyang Fu, Zixing Song, F. Zhang, Desheng Zhang.
Measuring the Impacts of Anomalies on Travel Time of Multiple Transportation Systems
In the ACM International Joint Conference on Pervasive & Ubiquitous Computing

[7] **UbiComp'18**
Xiaoyang Xie, **Yu Yang**, Z. Fang, G. Wang, F. Zhang, F. Zhang, Y. Liu, Desheng Zhang.
coSense: Collaborative Urban-Scale Vehicle Sensing based on Heterogeneous Fleets
In the ACM International Joint Conference on Pervasive & Ubiquitous Computing

[8] **UbiComp'18**
Yu Yang, Fan Zhang, Desheng Zhang.
SharedEdge: GPS-Free Fine-Grained Travel Time Estimation in State-Level Highway Systems
In the ACM International Joint Conference on Pervasive & Ubiquitous Computing

[9] **UbiComp'17**
Ruilin Liu, **Yu Yang**, Daehan Kwak, Desheng Zhang, Liviu Iftode, Badri Nath.
Towards Fine-Grained Parking Availability Crowdsourcing Using Parking Decision Models
In the ACM International Joint Conference on Pervasive & Ubiquitous Computing

Journal Acticles

[10] **TMC'21**
Yu Yang, Xaoyang Xie, Zhihan Fang, Fan Zhang, Yang Wang, Desheng Zhang.
Enabling Transparent Vehicular Mobility Modeling at Individual Levels with Full Penetration
In the IEEE Transactions on Mobile Computing

[11] **Comm.'17**
Guangjie Han, Li Liu, Sammy Chan, Ruiyun Yu, **Yu Yang**.
A Hybrid Mobile CrowdSensing Framework for Sensing Opportunities Compensation
In the IEEE Communications Magazine

[12] **Sensors'16**
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 the Sensors

Under Submission

[1] **Yu Yang**, Hua Yan, Hao Wang, Zhou Qin, Shuai Wang and Desheng Zhang.
Identifying Regional Driving Risks via Transductive Cross-City Transfer Learning Under Negative Transfer

[2] **Yu Yang**, Guang Wang, Wenjun Lyu, Y. Zhao, Zheng Yang, Yunhuai Liu, Jie Gao and Desheng Zhang.
Modeling Human Exploration Mobility by Cellular Networks from An Evolving Perspective

RESEARCH EXPERIENCE

- **Citywide** Food Delivery System with **100 thousand** couriers and **7.3 million** customers:
  - **aBeacon [NSDI'21]** described a **28-month** deployment and operation of **12 thousand** Bluetooth beacon devices in the wild. This work was **deployed** in *Eleme*, a delivery service company of **Alibaba Group**, to detect couriers' delivery status and supports **64 million** delivery orders.
  - **TransLoc [MobiCom'20]** was the first work of couriers' indoor localization based on couriers' **reporting behavior**. This work was **deployed** in a pilot platform of *Eleme*.
- **Nationwide** Vehicular System with **1.5 million** vehicles in **50 cities**:
  - **RiskTrans [Under Submission]** was the first work that infers **regional driving risk** by quantitatively identifying and addressing the negative transfer issue in cross-city transfer learning.
- **Statewide** Cellular Network System with **59 thousand** users:
  - **ExMo [Under Submission]** specifically modeled human **irregular/exploration mobility** that is of great importance but neglected in the previous work.
- **Statewide** Highway System with daily **2 million** vehicles:
  - **Mohen [UbiComp'20]** utilized the complementary characteristics of heterogeneous sensing systems to extend the sensing coverage of a single sensing system.
  - **VeMo [MobiCom'19]** was the first work infer the locations of vehicles on highways without GPS information based on the drivers' **driving behavior modeling**.
  - **SharedEdge [UbiComp'18]** was the first work infer fine-grained travel time on highways without GPS information based on the drivers' **path selection behavior modeling**.
- **Citywide** Heterogeneous Systems with **50 thousand** vehicles, **8-line** subways, **3 million** users:
  - **CellPred [UbiComp'20]** learned individual cellular data usage pattern based on **mobility patterns** and **data usage behavior**.
  - **MAC [UbiComp'19]** used transportation infrastructures for travel time measurement under anomalies.
  - **coSense [UbiComp'18]** achieved vehicle sensing based on heterogeneous fleets and **mobility patterns**.

GRANT PARTICIPATION

[1] Socially Informed Services Conflict Governance through Specification, Detection, Resolution and Prevention
NSF S&CC: Smart and Connected Communities, SCC-IRG Track 1, Funded in 2020, $ 2.3M
PI: Dr. Desheng Zhang
- Performed as the **leading student** to build the data platform in Newark City.
- Participated in the draft of the proposal.

[2] Adaptable Vehicular Sensing and Control for Fleet-Oriented Systems
NSF S&AS: Smart and Autonomous Systems, Funded in 2019, $ 640K
PI: Dr. Desheng Zhang
- Conducted research work as the preliminary results for this proposal.
- Participated in the draft of the proposal.

INDUSTRY EXPERIENCE

Research Intern, *Eleme*, Alibaba Group

Mentor: Dr. Tian He (one of the referees)

- Led the couriers' indoor localization project and deployed the pilot system to support the existing business.
- Worked closely with the *aBeacon* deployment team to operate more than 12 thousand Bluetooth beacons supporting 64 million delivery orders.

TEACHING EXPERIENCE

As an **Instructor**:

- Technical Communication for Computer Scientists **(Northeastern University, A0809051030)**

As a **Teaching Assistant**:

- Introduction to Computer Science **(Rutgers CS111)**
- Data Structure **(Rutgers CS112)**
- Introduction to Discrete Structures II **(Rutgers CS206)**
- Principles of Programming Languages **(Rutgers CS314)**

MENTORING EXPERIENCE

Undergraduate Students:

- Dengpan Yuan: Going to purse a graduate degree; coauthor of TransLoc in MobiCom'20.
- Maya Ravichandran: Going to purse a graduate degree; 2021 Marshall Scholar winner.
- Tongle Yao: Working as Software Engineer in Scantist.

Graduate Students (Master):

- Kush Aswani: Working as Software Engineer.

PROFESSIONAL ACTIVITIES

Invited Talk

- Colloquium in Rutgers Discovery Informatics Institute (RDI^2)
- Twice in CS Conference, Department of Computer Science
- Guest presentation in CS 672: Data Science for Smart Cities

(External) Reviewer

- Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), ACM Transactions on Sensor Networks (TOSN), ACM Transactions on Cyber-Physical Systems (TCPS).

REFERENCES

Desheng Zhang, Assistant Professor (Thesis Advisor)
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Tian He, Professor, ACM/IEEE Fellow
Department of Computer Science and Engineering, University of Minnesota
Email: tianhe@cs.umn.edu

Jie Gao, Professor
Department of Computer Science, Rutgers University
Email: jg1555@cs.rutgers.edu