# Yu Yang

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## OBJECTIVE

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

## RESEARCH INTERESTS

- Broadly interested in the areas of **Data Science** and **Cyber-Physical Systems** (CPS) by a technical integration of data, humans, and systems with emphases on data-intensive urban CPS.
- Focused on (i) **human behavior learning** driven by rich data collected from urban physical systems; (ii) applying learned human behavior knowledge back to optimize and improve urban physical systems.

## 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 — Sep. 2011 - Jul. 2015
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:**

- Maya Ravichandran: 2021 Marshall Scholar winner.
- Dengpan Yuan: coauthor of TransLoc in MobiCom'20.
- 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
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