

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 Ph.D. in Computer Science	Sep. 2017 - May 2021 (Expected)
Rutgers University, USA Master of Science in Computer Science	Sep. 2015 - May 2017 with Outstanding Awards
Northeastern University, China Bachelor of Engineering in Software Engineering	Sep. 2011 - Jul. 2015 with Excellent Thesis Award

EMPLOYMENT

Visiting Student MIT, USA	Jan. 2021 - Present
Research Assistant Rutgers University, USA	Sep. 2019 - Present
Research Intern Local Services BU, Alibaba Group	May. 2019 - Sep 2019
Teaching Assistant Rutgers University, USA	Sep. 2017 - May 2019

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] Ding Yi, Ling Liu, **Yu Yang**, Yunhuai Liu, Tian He, Desheng Zhang.
NSDI'21 *A Lifetime Story of a 3-Year-Old Operational Wireless Beacon System in the Wild*
 19/114=17% In the 18th USENIX Symposium on Networked Systems Design and Implementation
- [2] **Yu Yang**, Ding Yi, D. Yuan, G. Wang, X. Xie, Yunhuai Liu, Tian He, Desheng Zhang.
MobiCom'20 *Transparent Indoor Localization with Uncertain Human Participation for Instant Delivery*
 62/384=16% In the 26th Annual International Conference on Mobile Computing and Networking
- [3] **Yu Yang**, Zhihan Fang, Xiaoyang Xie, Fan Zhang, Yunhuai Liu, Desheng Zhang.
UbiComp'20 *Extending Coverage of Stationary Sensing Systems with Mobile Sensing Systems*
 149/848=17.5% In the ACM International Joint Conference on Pervasive & Ubiquitous Computing
UbiComp Community Audience Award
- [4] Zhou Qin, Fang Cao, **Yu Yang**, Shuai Wang, Yunhuai Liu, Chang Tan, Desheng Zhang.
UbiComp'20 *CellPred: A Behavior-aided Scheme for Cellular Data Usage Prediction*
 149/848=17.5% In the ACM International Joint Conference on Pervasive & Ubiquitous Computing
- [5] **Yu Yang**, Xiaoyang Xie, Zhihan Fang, Fan Zhang, Yang Wang, Desheng Zhang.
MobiCom'19 *Enabling Transparent Vehicular Mobility Modeling at Individual Levels with Full Penetration*
 55/290=19% In the 25th Annual International Conference on Mobile Computing and Networking
- [6] Zhihan Fang, **Yu Yang**, Shuai Wang, Boyang Fu, Zixing Song, F. Zhang, Desheng Zhang.
UbiComp'19 *Measuring the Impacts of Anomalies on Travel Time of Multiple Transportation Systems*
 176/750=23% In the ACM International Joint Conference on Pervasive & Ubiquitous Computing
- [7] Xiaoyang Xie, **Yu Yang**, Z. Fang, G. Wang, F. Zhang, F. Zhang, Y. Liu, Desheng Zhang.
UbiComp'18 *coSense: Collaborative Urban-Scale Vehicle Sensing based on Heterogeneous Fleets*
 140/501=27% In the ACM International Joint Conference on Pervasive & Ubiquitous Computing
- [8] **Yu Yang**, Fan Zhang, Desheng Zhang.
UbiComp'18 *SharedEdge: GPS-Free Fine-Grained Travel Time Estimation in State-Level Highway Systems*
 140/501=27% In the ACM International Joint Conference on Pervasive & Ubiquitous Computing
- [9] Ruilin Liu, **Yu Yang**, Daehan Kwak, Desheng Zhang, Liviu Iftode, Badri Nath.
UbiComp'17 *Towards Fine-Grained Parking Availability Crowdsourcing Using Parking Decision Models*
 9/151=6% In the ACM International Joint Conference on Pervasive & Ubiquitous Computing
Honored as a discussant paper

Journal Articles

- [10] **Yu Yang**, Xiaoyang Xie, Zhihan Fang, Fan Zhang, Yang Wang, Desheng Zhang.
TMC'20 *Enabling Transparent Vehicular Mobility Modeling at Individual Levels with Full Penetration*
 In the IEEE Transactions on Mobile Computing
- [11] Guangjie Han, Li Liu, Sammy Chan, Ruiyun Yu, **Yu Yang**.
Comm.'17 *A Hybrid Mobile CrowdSensing Framework for Sensing Opportunities Compensation*
 In the IEEE Communications Magazine
- [12] Ruiyun Yu, **Yu Yang**, Leyou Yang, Guangjie Han, Oguti Ann Move.
Sensors'16 *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 (*RDI²*)
- 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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