

# Haoxiang (Steven) Yu

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Cockrell School of Engineering  
The University of Texas at Austin - Austin, Texas 78712

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## EDUCATION

- Ph.D. , Electrical and Computer Engineering, The University of Texas at Austin** (Expected) Dec 2024  
Research Areas: Pervasive Computing, Decentralized Learning | Supervisor: Dr. Christine Julien
- M.S. in Computer Science, Miami University** May 2021  
Thesis: A Comprehensive System for Dynamic and Distributed Taxi Ride-Sharing via Localized Communication  
Supervisor: Dr. Vaskar Raychoudhury
- B.S. in Computer Science, Miami University** May 2020  
Graduated with *Cum Laude*
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## AWARDS & FELLOWSHIPS

- Fellowship, The University of Texas at Austin** Aug 2021 - May 2024
- Best Student Paper Award, Mobiquitous 2021** Nov 2021
- Student Project Award - Honorable Work, ICDH 2021** Sep 2021
- Provost's Student Academic Achievement Award, Miami University** Sep 2020  
Granted annually to 10-15 students achieving an outstanding record of academic excellence; first computer science student to receive the award since 2016
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## PROFESSIONAL EXPERIENCE

- Graduate Teaching/Research Assistant, The University of Texas at Austin** Aug 2021 - Present  
*Cockrell School of Engineering | Supervisor: Dr. Christine Julien*
- Moderates course discussions, evaluates students' work, holds regular office hours, and provides constructive feedback to students as the teaching assistant for graduate-level algorithms coursework
  - Performs research on Smart Home, Internet of Things (IoT), TinyML, Mobile Systems, and Middleware
  - Develops and maintains a federated learning system with other research group members
  - Leads a team of undergraduate students in designing a system to simulate environment characteristics for smart home design
- Research & Development Intern, TOYOTA InfoTechnology Center Co., Ltd.** Jan 2023 - Aug 2023
- Designs and implements next-generation decentralized learning systems that would maximize resource utilization for automatic and assistive driving infrastructure
  - Researches on machine learning, optimization techniques, infrastructure, data platform to support autopilot and related systems, and explore the future of mobility
  - Leverages machine learning algorithms to increase performance efficiency and reduce the carbon-neutral footprint of the infrastructure in a centralized or distributed manner
- Teaching Assistant, Graduate Assistant, Miami University** Sep 2018 - May 2021
- Center for Analytics and Data Science (CADS) Intern, Miami University** Jan 2019 - May 2019
- Developed a chatbot for a top-ranked Fortune 500 healthcare company using massive amounts of internal product information data
  - Applied data processing, machine learning, and natural language processing to design a system that understands user inputs and replies with appropriate answers
- Software/Data Engineer, Beijing Aixuan Info Tech. Co., Ltd.** Jun 2017 - Aug 2017; Jan 2018; May 2018 - Aug 2018; Jan 2019
- Led development and maintenance of Aixuan's official website and back-office system
  - Applied natural language processing to analyze manually input physical examination data
  - Utilized algorithms to sort and analyze terabytes of healthcare and insurance data
  - Established strategic plans including long-term consideration of technology selection and project planning with other co-founders to increase the company's presence in the insurance industry
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## **SELECTED PUBLICATIONS**

**[Human Activity Recognition: HAR; Decentralized Machine Learning: DML; Smart Environment: SE; Intelligent Transportation: IT; Blockchain: B; Large Language Model: LLM]**

### **Journal Article**

1. **Yu, Haoxiang**, Vaskar Raychoudhury, Snehanshu Saha, Md Osman Gani, Janick Edinger, and Roger Smith, "Automated Surface Classification System using Vibration Patterns - A Case Study with Wheelchairs" IEEE Transactions on Artificial Intelligence **[HAR]**

### **Conference Proceedings**

2. Raychoudhury, Mrittika, **Haoxiang Yu**, and James D Kiper. "ActiviSee: Activity Transition Detection for Human Users through Wearable Sensor-augmented Glasses" Proceedings of the 10th International Workshop on Human Activity Sensing Corpus and its Application (at UbiComp). 2022 **[HAR]**
3. **Yu, Haoxiang**, Hsiao-Yuan Chen, Sangsu Lee, Xi Zheng, and Christine Julien. "Prototyping Opportunistic Learning in Resource-Constrained Mobile Devices" Proceedings of the 1st Workshop on Pervasive and Resource-Constrained Artificial Intelligence (at PerCom). 2022 **[DML]**
4. Lee, Sangsu, **Haoxiang Yu**, Xi Zheng, and Christine Julien. "Swarm: Playground for Large-scale Decentralized Learning Simulations" Proceedings of the IEEE Pervasive Computing and Communication. 2022 **[DML]**
5. Jie,Hua, **Haoxiang Yu**, Sangsu Lee, Hamim Md Adal, Colin Milhaupt, Gruia-Catalin Roman, and Christine Julien. "CoPI: Enabling probabilistic conflict prediction in smart space through context-awareness" Proceedings of the 7th ACM/IEEE Conference on Internet of Things Design and Implementation. 2022 **[SE]**
6. **Yu, Haoxiang**, Jie Hua, and Christine Julien, "Dataset: Analysis of IFTTT Recipes to Study How Humans Use Internet-of-Things (IoT) Devices" Proceedings of the 4th Workshop on Data Acquisition To Analysis (at BuildSys). 2021 **[SE]**
7. **Yu, Haoxiang**, Vaskar Raychoudhury, and Snehanshu Saha. "Dynamic Taxi Ride-Sharing through Adaptive Request Propagation using Regional Taxi Demand and Supply" Proceedings of the 18th EAI International Conference on Mobile and Ubiquitous Systems: Computing, Networking, and Services. 2021 **[Best Student Paper Award]** **[IT]**
8. Mokrenko, Valeria, **Haoxiang Yu**, Vaskar Raychoudhury, Janick Edinger, Roger Smith, and Md Osman Gani. "A Transfer Learning Approach to Surface Detection for Accessible Routing for Wheelchair Users" Proceedings of the IEEE 45th Annual Computers, Software, and Applications Conference. 2021 **[HAR]**

### **Preprints**

9. **Yu, Haoxiang**, Hsiao-Yuan Chen, Sangsu Lee, Sriram Vishwanath, Xi Zheng, and Christine Julien. "IDML: Incentivized decentralized machine learning", arXiv preprint arXiv:2304.05354. 2023 **[DML, B]**
10. King, Evan, **Haoxiang Yu**, Sangsu Lee, and Christine Julien. "Sasha: creative goal-oriented reasoning in smart homes with large language models" arXiv preprint arXiv:2305.09802. 2023 **[LLM, SE]**
11. **Yu, Haoxiang**, Jingyi An, Evan King, Edison Thomaz, and Christine Julien. "Cheating off your neighbors: Improving activity recognition through corroboration" arXiv preprint arXiv:2306.06078. 2023 **[HAR]**

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## **SELECTED PATENTS**

**Yu, Haoxiang**, Chianging Wang. "Systems and methods for predicting presence of objects using decentralized data collection and map databased information compression" Patent application submitted, USPTO

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## **SELECTED ACADEMIC SERVICES**

Reviewer, International Journal of Human-Computer Interaction (IJHCI)	2023
Reviewer, Disability and Rehabilitation: Assistive Technology	2023
Reviewer, ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp/ISWC)	2023
Reviewer, International AAAI Conference on Web and Social Media (ICWSM)	2023
Reviewer, IEEE Transactions on Mobile Computing	2022
Reviewer, Journal of Network and Computer Applications	2021, 2022
Subreviewer, International Conference on Pervasive Computing and Communications (PerCom)	2022
Organizer, Perawarecity-WSCC-2022 (Workshop at PerCom 2022)	2022
Reviewer, Journal of Mobile Networks and Applications	2022