

Xiaoxuan LU

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| CONTACT | Department of Computer Science University of Oxford UK OX1 3QD | Email: xiaoxuan.lu@cs.ox.ac.uk Tel: +44 (0) 7421 8 78460 Web: https://christopherlu.github.io/ |
| RESEARCH INTERESTS | Core: Cyber-Physical Systems, Autonomous Systems Applications: Internet of Things, Mobile Computing, Security and Privacy | |
| ACADEMIC POSITION | University of Liverpool, UK Assistant Professor of Computer Science, 2020 ~ now University of Oxford, UK Postdoctoral Researcher in Autonomous Cyber-Physical Systems, 2019 ~ 2020 | |
| EDUCATION | University of Oxford, UK PhD in Computer Science, 2015 ~ 2019 <ul style="list-style-type: none">- Google-DeepMind PhD Scholarship- Thesis: <i>Robustly Inferring Identity across Digital and Physical Spaces</i>- PhD Committee: Prof. Niki Trigoni (advisor), Dr. Andrew Markham (co-advisor), Dr. Thomas Ploetz and Dr. Nic Lane- Citation: 578, h-index: 11, 10-index: 12 Nanyang Technological University (NTU), Singapore M.Eng in Electrical and Electronic Engineering, 2013 ~ 2015 <ul style="list-style-type: none">- 1st graduate in the same-year group- Thesis: <i>Development of Non-intrusive WiFi Based Indoor Positioning Systems</i>- Advisor: Prof. Lihua Xie (IEEE Fellow) Nanjing University of Aeronautics and Astronautics (NCAA), P.R. China B.Eng. in Automation Engineering, 2009 ~ 2013 <ul style="list-style-type: none">- Outstanding Graduate Award | |
| SELECTED AWARDS | Outstanding overseas Chinese Students Award 2019 Oxford Junior Research Fellowship (2nd place and courteously declined) 2019 Best Paper Nominee - DCOS'19 2019 Google-Deepmind PhD Scholarship 2015 ~ 2018 Oxford-Keble Association Study Awards ×3 2016 ~ 2018 Microsoft Indoor Localization Competition 4th Place Award 2015 NTU Master of Engineering Award ×3 2013 ~ 2015 NCAA Chancellor Gold Medal in Academics (1/16000 students) 2012 CASC Scholarship (2/16000 students) 2012 CATIC Scholarship (7/4000 students) 2011 National Scholarship of China (Top 1%) 2010 Grand Prize of National Electrical Control and Design Contest 2012 Excellent Student Cadre of Jiangsu Province 2012 NCAA First-class Honour Scholarship (Top 2%) ×3 2010-2013 | |

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| TRAVEL | Faith Ivens-Franklin Travel Grant | 2018 |
| GRANTS | SIGCOMM Travel Grant @ ACM IMC | 2019 |
| | SIGCHI Travel Grant @ ACM Ubicomp | 2018 |
| | SIGMOBILE Travel Grant @ ACM SenSys | 2017 |
| | IEEE ComSoc Travel Grant @ WiMob | 2016 |

PUBLICATIONS * denotes supervision role.

Conference Papers:

19. **Xiaoxuan Lu**, Yang Li, Yuanbo Xiangli and Zhengxiong Li. "Nowhere to Hide: Cross-modal Identity Leakage between Biometrics and Devices" In *ACM International World Wide Web Conference (WWW'2020)*. Core Rank: A*
18. **Xiaoxuan Lu**, Xuan Kan, Bowen Du, Changhao Chen, Hongkai Wen, Andrew Markham, Niki Trigoni and John Stankovic. "Autonomous Learning for Face Recognition in the Wild via Ambient Wireless Cues" In *ACM International World Wide Web Conference (WWW'2019)*. Core Rank: A*
17. **Xiaoxuan Lu**, Yang Li, Peijun Zhao, Changhao Chen, Linhai Xie, Hongkai Wen, Rui Tan and Niki Trigoni. "Simultaneous Localization and Mapping with Power Network Electromagnetic Field." In *ACM International Conference on Mobile Computing and Networking (MobiCom'2018)*. Core Rank: A*
16. **Xiaoxuan Lu**, Bowen Du, Hongkai Wen, Sen Wang, Andrew Markham, Ivan Marinovic, Yiran Shen and Niki Trigoni. "Snoopy: Sniffing Your Smartwatch Passwords via Deep Sequence Learning." In *ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp'2018)*. Core Rank: A*
15. **Xiaoxuan Lu**, Bowen Du, Peijun Zhao, Hongkai Wen, Yiran Shen and Niki Trigoni. "DeepAuth: In-situ Authentication for Smartwatches via Deeply Learned Behavioural Biometrics." In *International Symposium on Wearable Computers (ISWC'2018)*. Core Rank: A*
14. **Xiaoxuan Lu**, Hongkai Wen, Sen Wang, Andrew Markham and Niki Trigoni. "SCAN: Learning Speaker Identity From Noisy Sets of Sensor Data" In *International Conference on Information Processing in Sensor Networks (IPSN'2017)*, Core Rank: A*
13. **Xiaoxuan Lu**, Chenpu Yu, Han Zou, Hao Jiang, Lihua Xie. "Extreme Learning Machine with Dead Zone and its Application to WiFi Based Indoor Positioning." In *13th International Conference on Control, Automation, Robotics and Vision (ICARCV'2014)*. Core Rank: A
12. Peijun Zhao, **Xiaoxuan Lu***, Bing Wang, Changhao Chen, Linhai Xie, Mengyu Wang, Niki Trigoni and Andrew Markham. "Heart-Rate Sensing With a Robot Mounted mmWave Radar" In *International Conference on Robotics and Automation (ICRA'2020)*.
11. Muhamad Saputra, Pedro Gusmão, **Xiaoxuan Lu**, Yasin Almalioglu and et al. "DeepTIO: A Deep Thermal-Inertial Odometry with Visual Hallucination" In *International Conference on Robotics and Automation (ICRA'2020)*.
10. Bing Wang, Changhao Chen, **Xiaoxuan Lu**, Peijun Zhao, Niki Trigoni and Andrew Markham. "AtLoc: Attention Guided Camera Localization." In *AAAI Conference on Artificial Intelligence (AAAI'2020)*. Core Rank: A*
9. Changhao Chen, Stefano Rosa, Yishu Miao, **Xiaoxuan Lu**, Wei Wu, Andrew Markham and Niki Trigoni. "Selective Sensor Fusion for Neural Visual In-

- ertial Odometry." In *Conference on Computer Vision and Pattern Recognition (CVPR'2019)*. Core Rank: A*
8. Changhao Chen, Yishu Miao, **Xiaoxuan Lu**, Linhai Xie, Andrew Markham and Niki Trigoni. "MotionTransformer: Transferring Physical Motion Between Domains For Neural Inertial Tracking." In *AAAI Conference on Artificial Intelligence (AAAI'2019)*. Core Rank: A*
 7. Changhao Chen, **Xiaoxuan Lu**, Andrew Markham and Niki Trigoni. "IONet: Learning to Cure the Curse of Drift in Inertial Odometry." In *AAAI Conference on Artificial Intelligence (AAAI'2018)*. Core Rank: A*
 6. Peijun Zhao, **Xiaoxuan Lu***, Jianan Wang, Changhao Chen, Wei Wang, Niki Trigoni and Andrew Markham. "mID: Tracking and Identifying People with Millimeter Wave Radar." In *International Conference on Distributed Computing in Sensor Systems (DCOSS'2019)*. [Best Paper Nominee]
 5. Bowen Du, **Xiaoxuan Lu**, Xuan Kan, Kai Wu, Man Luo, Jianfeng Hou, Kai Li, Salil Kanhere, Yiran Shen, Hongkai Wen. "HydraDoctor: Real-time Liquids Intake Monitoring by Collaborative Sensing." In *International Conference on Distributed Computing and Networking (ICDCN'2018)*.
 4. **Xiaoxuan Lu**, Hongkai Wen, Han Zou, Hao Jiang, Lihua Xie and Niki Trigoni. "Robust Occupancy Inference with Commodity WiFi." In *International Conference on Wireless and Mobile Computing, Networking and Communications (WiMob'2016)*.
 3. Han Zou, Baoqi Huang, **Xiaoxuan Lu**, Hao Jiang and Lihua Xie. "Standardizing Location Fingerprints Across Heterogeneous Mobile Devices for Indoor Localization." In *14th Wireless Communications and Networking Conference (WCNC'2016)*.
 2. Han Zou, Yiwen Luo, **Xiaoxuan Lu**, Hao Jiang and Lihua Xie. "A Mutual Information based Online Access Point Selection Strategy for WiFi Indoor Localization." In *11th International Conference on Automation Science and Engineering (CASE'2015)*.
 1. Han Zou, Hao Jiang, **Xiaoxuan Lu**, and Lihua Xie. "An Online Sequential Extreme Learning Machine Approach to WiFi Based Indoor Positioning". In *1st World Forum on the Internet of Thing (WF-IoT'14)*.

Journal Articles:

9. **Xiaoxuan Lu**, Yuanbo Xiangli, Peijun Zhao, Changhao Chen, Niki Trigoni, Andrew Markham. "Autonomous Learning of Speaker Identity and WiFi Geofence from Noisy Sensor Data.", *IEEE Internet of Things Journal*, 2019. (impact factor: 9.515)
8. **Xiaoxuan Lu**, Han Zou, Hongming Zhou, Lihua Xie, Guangbin Huang. "Robust Extreme Learning Machine with Its Application to Indoor Positioning.", *IEEE Transactions on Cybernetics*, 2015. (impact factor: 10.387)
7. Changhao Chen, **Xiaoxuan Lu***, Johan Wahlstrom, Andrew Markham and Niki Trigoni. "Deep Neural Network Based Inertial Odometry Using Low-cost Inertial Measurement Units.", *IEEE Transactions on Mobile Computing*, 2020. (impact factor: 4.474)
6. Changhao Chen, Peijun Zhao, **Xiaoxuan Lu***, Andrew Markham and Niki Trigoni. "Deep Learning based Pedestrian Inertial Navigation: Methods, Dataset and On-Device Inference.", *IEEE Internet of Things Journal*, 2020. (impact factor: 9.515)

5. Hongkai Wen, Ronald Clark, Sen Wang, **Xiaoxuan Lu**, Bowen Du, Wen Hu and Niki Trigoni. "Efficient Indoor Positioning with Visual Experiences via Lifelong Learning.", IEEE Transactions on Mobile Computing, 2018. (**impact factor: 4.474**)
4. Stefano Rosa, Andrea Patanè, **Xiaoxuan Lu**, Niki Trigoni, "Semantic Place Understanding for Human-Robot Cooperation - Towards Intelligent Workplaces", IEEE Transactions on Human-Machine Systems, 2018. (**impact factor: 3.332**)
3. Han Zou, Hao Jiang, Yiwen Luo, Jianjie Zhu, **Xiaoxuan Lu**, Lihua Xie. "BlueDetect: An iBeacon-Enabled Scheme for Accurate and Energy-Efficient Indoor-Outdoor Detection and Seamless Location-Based Service.", Sensors, 16(2), 2016. (**impact factor: 3.031**)
2. Han Zou, Baoqi Huang, **Xiaoxuan Lu**, Hao Jiang and Lihua Xie. "A Robust Indoor Positioning System based on the Procrustes Analysis and Weighted Extreme Learning Machine.", IEEE Transactions on Wireless Communications, 2015. (**impact factor: 6.394**)
1. Han Zou, **Xiaoxuan Lu**, Hao Jiang and Lihua Xie. "A Fast and Precise Indoor Localization Algorithm based on Online Sequential Extreme Learning Machine.", Sensors, 2015. (**impact factor: 3.031**)

Demos & Posters:

3. **Xiaoxuan Lu**, Peijun Zhao, Bowen Du, Hongkai Wen, Andrew Markham, Stefano Rosa and Niki Trigoni "Demo: Automatic Face Recognition Adaptation via Ambient Wireless Identifiers" In *International Conference on Embedded Networked Sensor Systems (SenSys'18)*, ACM, 2018.
2. **Xiaoxuan Lu**, Xuan Kan, Stefano Rosa, Bowen Du, Hongkai Wen, Andrew Markham and Niki Trigoni "Poster: Towards Self-supervised Face Labeling via Cross-modality Association." In *International Conference on Embedded Networked Sensor Systems (SenSys'17)*, ACM, 2017.
1. Han Zou, Hao Jiang, **Xiaoxuan Lu** and et al. "Demo: An Accurate and Reliable WiFi-based Indoor Localization and Navigation System." In *the 13th International Conference on Information Processing in Sensor Network (IPSN'15)*, ACM/IEEE, 2015.

TEACHING EXPERIENCE

Embedded Software and Systems

Role: Course Tutor and Demonstrator

Graduate course, University of Oxford, Department of Computer Science, 2019

Introduction of Human Computer Interaction

Role: Lecturer

Graduate/Undergraduate course, ViaX Online Seminar, 2019

Sensor and Actuator Networks

Role: Course Co-Designer and Tutor

Graduate/Undergraduate course, University of Oxford, Department of Engineering, 2019

Internet of Things

Role: Course Co-Designer and Tutor

Graduate course, University of Oxford, Department of Computer Science, 2018

Mobile and Sensor Networks

Role: Co-lecturer and Tutor

Graduate course, University of Oxford, Department of Computer Science, 2017

Introduction to Programming with Python

Role: Teaching Assistant

Undergraduate course, Nanyang Technology University, School of Electrical and Electronic Engineering, 2014

STUDENT MENTORING

- **PhD Students**

- Peijun Zhao, University of Oxford
- Changhao Chen, University of Oxford

- **Master Students**

- Amber Xiangli, University of Oxford (now PhD student at CUHK)
- Yang Li, New York University
- Jialu Wang, University College London

- **Undergraduate Students**

- Xuan Kan, Tongji University (now PhD student at Emory University)
- Haotian Yin, Purdue University

- **High-school Students**

- Elizaveta Sheremetyeva, Oxford High School GDST

INVITED TALKS

Title: Towards Trustworthy Cyber Physical Systems

- University of Liverpool (June 2019)
- Cardiff University (June 2019)
- Chinese Academy of Science (August 2019)
- Nanjing University (December 2019)

Title: Robust Perception for Firefighting in Smoke-Filled Environments

- JRF Talk @ University of Oxford (May 2019)

Title: Robustly Inferring Identity across Digital and Physical Worlds

- University of Cambridge (November 2018)
- Huazhong University of Science and Technology (December 2018)

PROFESSIONAL SERVICE

- **Technical Program Committee (TPC):**

- The Web Conference (WWW) 2020
- International Workshop on FAILSAFE @ EWSN 2020
- ACM IMC 2019 (Shadow PC)
- International Workshop on Deep Learning for HAR @ IJCAI 2019
- International Workshop on Data Acquisition to Analysis @ SenSys 2019
- International Workshop on Multimodal Learning for IoT @ UbiComp 2019
- International Workshop on Device-Free Human Sensing @ BuildSys 2019
- Ph.D Forum @ MobiSys 2019
- ACM EWSN 2019 - Demo/Poster

- **Organization:**

- ACM DATA@SenSys'2018 - Session Chair

- **External Conference Reviewer:**

- ACM UbiComp 2019, 2020
- IJCAI 2019
- ACM CHI 2019
- IEEE ICC 2019

- **Journal Reviewer:**

- ACM Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT)
- IEEE Transactions on Mobile Computing (TMC)
- ACM Transactions on Sensor Networks (TOSN)
- IEEE Internet of Things Journal (IoT-J)
- ACM Transactions on Intelligent Systems and Technology
- ACM Transactions on Computing for Healthcare
- IEEE Computational Intelligence Magazine
- IEEE Transactions on Cybernetics
- Elsevier Neurocomputing
- Springer Autonomous Robots
- MDPI Sensors

REFERENCES

Prof. Niki Trigoni (advisor)

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University of Oxford

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Oxford, OX1 3PR, UK

Dr. Andrew Markham (co-advisor)

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Dr. Nic Lane

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Nanyang Technological University

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50 Nanyang Ave, Singapore

Prof. Lihua Xie (Fellow of IEEE)

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Nanyang Technological University

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Prof. John A. Stankovic (Fellow of ACM & IEEE)

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University of Virginia

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