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EMPLOYMENT

Columbia University in the City of New York, New York 2015.7-Present
Associate Professor, Electrical Engineering 2020.7-Present
Assistant Professor, Electrical Engineering 2015.7-2020.6
Affiliate, Computer Science
Chair of Smart Cities Center, Data Science Institute 2015-Present

Air Scientific Inc., Beijing 2014.7-2015.3
Co-Founder and CTO

Intel Labs China, Beijing 2012.9-2014.7
Director, Analytics and IoT Research Laboratory
Chief Architect, China Intel IoT Joint Labs

Microsoft Research Asia, Beijing 2010.10-2012.9
Researcher

Google, Palo Alto CA 2007.6-2007.8
Engineering Intern

Arch Rock, San Francisco CA 2006.1-2006.5
Technical Consulting

Intel Corporation, Santa Clara CA 2005.2-2005.7
Component Design Engineer

Xilinx, San Jose CA 2004.1-2004.7
Intern Engineer

EDUCATION

University of California, Berkeley 2005.9-2010.9
Ph.D. in Computer Science, completed 2010.9
Thesis: *High-Fidelity Wireless Building Energy Monitoring Architecture*
M.S. in Electrical Engineering and Computer Science, completed in 2007.12
Ph.D. Advisor: David E. Culler

University of California, Berkeley 2001.9-2004.12
B.Sc. in Electrical Engineering and Computer Science, Summa Cum Laude
Minor in Business Administration, Haas School of Business
Cumulative GPA 3.8, technical GPA 3.9

RESEARCH INTERESTS

Intelligent sensing systems, wireless and embedded systems, and Internet-of-Things:
My research lies at the intersection of *systems* and *data*, with a focus on *embedded intelligence* and its applications in wearable computing, Internet of Things, intelligent built environments, urban safety, and connected health. Please visit the *Intelligent and Connected Systems Lab's* website for recent research projects and news updates: **http://icsl.ee.columbia.edu/**

AWARDS AND HONORS

- Best Demo Award, ACM SenSys (2021)
- Best Paper Award, IEEE ITEC (2021)
- Best Demo Award, ACM/IEEE IPSN (2020)
- Best Paper Candidate, ACM/IEEE IoTDI (2020)
- NSF CAREER Award (2020)
- Best Paper Runner Up Award, ACM BuildSys (2019)
- Best Demo Award, ACM/IEEE IoTDI (2018)
- Best Presentation Award, IEEE VNC (2018)
- 2nd Place, App Contest, IEEE VNC (2018)
- MIT Technology Review 35 Innovators Under 35 Semi-Finalist. (2017)
- Best Paper Runner Up Award, ACM BuildSys (2017)
- Best Poster Award, ACM BuildSys (2016)
- Best Demo – Runner Up, ACM SenSys (2016)
- Best Demo Award, ACM SenSys (2011)
- National Science Foundation (NSF) Graduate Fellowship (GRFP). (2006)
- Best Paper Award, IEEE IPSN (2005)
- Vodafone-US Foundation Fellows Initiative Scholarship (2004)

RESEARCH FUNDING

Summary:
Total external funding as PI or Co-PI: $7.2M
Individual share (including internal funding): $3.4M
Total funding of all projects: $59.7M

CogniSense: Center on Cognitive Multispectral Sensors
Agency: Semiconductor Research Corporation (SRC) and Defense Advanced Research Projects Agency (DARPA)
PI Status: Co-PI (Site PI: Mingoo Seok, Project PI: Saibal Mukhopadhyay)
Period: 1/1/2023 - 12/31/2027
Total Project Funding: $28,198,597, Columbia Total: $2,750,000 (my share: $1,250,000)

NSF Engineering Research Center for Smart Streetscapes (CS3)
Agency: National Science Foundation (NSF)
PI Status: Senior Personnel (PI: Andrew Smyth)

Period: 9/1/2022 - 8/31/2027

Total Project Funding: $26,000,000

SCC-IRG Track 1: Preparing for Future Pandemics: Subway Crowd Management to Minimize Airborne Transmission of Respiratory Viruses (Way-CARE)

Agency: National Science Foundation (NSF)

PI Status: Co-PI (PI: Sharon Di)

Period: 1/1/2023 - 12/31/2026

Total Project Funding: $2,500,000 (my share: $306,730)

CAREER: A Scalable Occupant-Driven Energy Optimization System for Commercial Buildings

Agency: National Science Foundation (NSF)

PI Status: PI (Single PI)

Period: 6/1/2020 - 5/31/2025

Funding: $535,838

Gift: Intelligent Embedded Systems Research (Pending)

Company: Tencent

PI Status: PI (Single PI)

Date: 10/1/2022

Funding: $46,000 (unrestricted)

World Wide Flu and Emerging Disease Vision Surveillance System

Agency: Columbia SEAS

PI Status: PI (Joint PI: Andrew Rundle)

Period: 1/1/2022 - 12/31/2023

Funding: $85,000 (my share: $80,000)

Application of Gaussian Mixture Regression to obtain useful, actionable air pollution data from consumer-grade, low-cost monitoring devices

Agency: Columbia Data Science Institute

PI Status: Co-PI (PI: Daniel Westervelt)

Period: 1/1/2022 - 12/31/2023

Funding: $75,000 (my share: $15,000)

CPS: Building Information, Inhabitant, Interaction and Intelligent Integrated Modeling (BI5M)

Agency: National Science Foundation (NSF)

PI Status: PI (Co-PI: Patricia Culligan)

Period: 10/2018 – 9/2023

Funding: $240,000 (my share: ~$180,000)

CSR: Overheard at Home - Mitigating Over- hearing of Continuous Listening Devices

Agency: National Science Foundation (NSF)

PI Status: PI

Period: 7/1/2018 - 6/30/2023

Funding (my share at Columbia): $247,989

Total Project Funding: $500,000 (UNC lead)

CSR: CHS: Improving Pedestrian Safety in Urban Cities using Intelligent Wearable Systems

Agency: National Science Foundation (NSF)

PI Status: PI (Co-PI: Peter Kinget)

Period: 6/1/2017 - 5/31/2023

Funding (Columbia): $766,642 (my share: ~$383,321)

Total Project Funding: $1,200,000 (Columbia lead)

Industry Sponsored Research: Bidirectional Modular DC Vehicle Charger

Company: Longmax Corporation Ltd.

PI Status: Senior Personnel (PI: Matthias Preindl)

Date: 9/1/2019 – 8/31/2022

Funding (my share): ~$180,000 (1GRA/2Years)

Low-Cost Continuous Multi-Person Fever Detection for a Safer COVID-19 and Post-COVID-19 World

Agency: Columbia SEAS

PI Status: PI (co-PIs: Andrew Rundle and Teresa Spada)

Period: 9/1/2020 - 5/31/2022

Funding: $85,000 (my share: $85,000)

Real-Time Crowd Management to Prepare Subway Stations for Future Pandemics

Agency: Columbia SEAS

PI Status: Co-PI (PI: Sharon Di)

Period: 9/1/2020 - 12/31/2021

Funding: $85,000 (my share: $40,000)

Gift: Smart Cities Research at Columbia Intelligent and Connected Systems

Company: Sino-US Cyber-Physical Technology Co.

PI Status: PI (Single PI)

Date: 8/31/2018

Funding: $150,000 (unrestricted)

PROFESSIONAL ACTIVITIES AND SERVICES

Leadership Roles

- General Chair, ACM/IEEE IPSN ’23
- TPC co-Chair, ACM e-Energy ’23
- TPC co-Chair, IEEE MASS Track on AI/ML-based Smart Design ’22
- General Chair, ACM BuildSys ’21
- Founding Treasurer, ACM SIGEnergy, 2020-Present
- TPC co-Chair, ACM CHASE ’20
- General co-Chair, ACM SenSys ’19
- Steering Committee, ACM SenSys, 2019-Present
- Executive Committee, ACM Emerging Interest Group on Energy (EIG-ENERGY), 2018-2020
- Steering Committee Chair, ACM BuildSys, 2017-2018
- TPC co-Chair, ACM BuildSys ’14

Technical Program Committee

- ACM SenSys ’13, ’14, ’15, ’16, ’17, ’18, ’22
- ACM BuildSys ’10, ’12, ’13, ’17, ’18
- ACM/IEEE IPSN 11’, ’12, ’18
- ACM/IEEE IoTDI ’17, ’18, ’19
- ACM MobiSys ’14, ’20, ’21
- IEEE DCOSS ’13, ’14, ’15, ’16
- ACM e-Energy ’15, ’19
- ACM EWSN ’11, ’13
- MobiCASE ’14
- IEEE RTAS ’13
- ACM HotMobile ’16
- ACM ASPLOS ’14 (external reviewer)

Editorial

- Founding Area Editor, ACM Energy Informatics Review, 2021-present
- Guest Editor, IEEE Pervasive Computing SI on IoT Communications, 2018
- Guest Editor, ACM Transactions on Sensor Networks SI on Smart and Efficient Built Environments, 2018

Organizing Committee

- Local Arrangement co-Chair, ACM SIGCOMM ’20
- Co-Chair, IoT Expo ’16, IEEE SCIE ’17, ICCCN ’17 HoT
- Co-Chair, PhD Forum/Doctoral Colloquium at ACM SenSys ’17
- Publication Chair, ACM SenSys ’16, ACM BuildSys ’16
- Publicity Chair, ACM SenSys ’12, ACM EWSN ’16, ACM EWSN ’20
- Demo Chair, ACM BuildSys ’11, ’22, ACM/IEEE IPSN ’12, ACM/IEEE IPSN ’16, ACM SenSys ’16
- Web Chair, ACM SenSys ’10, ’11
- Poster Chair, ACM BuildSys ’11

Department, School, and University Committees

- Co-Chair, Smart Cities Center, Data Science Institute (10/2015 – current)
- Faculty, Computer Engineering (1/2016 – current)
- EE MS Career/Development/Internships (chair) (9/2017 – current)
- EE MS admissions (member) (9/2016 – current)
- EE computing labs (member) (9/2017 – current)
- University Green Leaders Network (member) (1/2018 – current)

Professional Organization Membership

- Professional Member, Association for Computing Machinery (ACM)
- Professional Member, Institute of Electrical and Electronics Engineers (IEEE)

PUBLICATIONS

Note: ACM/IEEE IPSN and ACM SenSys are widely regarded as the two most prestigious venues in sensing systems and IoT research, with an average acceptance rate of 20% for IPSN and 18% for SenSys. ACM/IEEE IoTDI is a relatively young conference that is emerging to be the premier venue for Internet-of-Things research with an average acceptance rate of 26%. ACM BuildSys is a conference focusing on systems issues in energy-efficient buildings, cities, and transportation systems, with papers from electrical engineers, computer scientists, and civil engineers. BuildSys is CORE A ranked, with a higher acceptance rate at around 30%; it is one of the two premier conferences (along with ACM e-Energy) for ACM Special Interest Group on Energy (SIGEnergy). IEEE Internet-of-Things Journal (IoTJ), established in 2014, is emerging to be the premier journal for IoT research with an Impact Factor of 10.238 (2021). Given my research areas, these are the best places for me to publish my work, in terms of both prestige and dissemination.

In sensing systems and IoT research, student authors are typically listed first in descending order of contribution. The last author is typically the leading faculty member. I underlined the names of students who I advise. Impact is partially based on citation counts and h-index, but also reflected in elected leadership positions and services in the community.

Refereed Conference Publications:

2022

[1] Xia, S. and **Jiang, X**., 2022, May. AvA: An Adaptive Audio Filtering Architecture for Enhancing Mobile, Embedded, and Cyber-Physical Systems. In *Proceedings of the 21st International Conference on Information Processing in Sensor Networks (ACM/IEEE IPSN '22)*, ACM/IEEE.

[2] Hou, K., Liu, Y., Wei, P., Yang, C., Xia, S., Spada, T., Rundle, A. and **Jiang, X.,** 2022, May. A Low-Cost In-situ System for Continuous Multi-Person Fever Screening. In *Proceedings of the 21st International Conference on Information Processing in Sensor Networks (ACM/IEEE IPSN '22)*, ACM/IEEE.

[3] Nie, J., Liu, Y., Zhou, L., **Jiang, X.** and Preindl, M., 2022, June. Deep Reinforcement Learning Based Approach for Optimal Power Flow of Microgrid with Grid Services Implementation. In *2022 IEEE Transportation Electrification Conference & Expo (ITEC) (pp. 1148-1153).* IEEE.

[4] Liu, Y., Nie, J., Xia, S., Sun, J., Wei, P. and **Jiang, X**., 2022, June. SoFIT: Self-Orienting Camera Network for Floor Mapping and Indoor Tracking. In *Proceedings of the 18th International Conference on Distributed Computing in Sensor Systems (IEEE DCOSS '22)*, IEEE.

2021

[5] Xia, S., Nie, J., and **Jiang, X**., 2021, April. CSafe: An Intelligent Audio Wearable Platform for Improving Construction Worker Safety in Urban Environments. *Proceedings of the 20th International Conference on Information Processing in Sensor Networks (ACM/IEEE IPSN '21)*, ACM/IEEE.

[6] Nie, J., Zhou, L., Kaye, M.F., Silveira, C.C., Nwokolo, A., **Jiang, X.** and Preindl, M., 2021, June. Optimal Power Flow Estimation of Microgrid Considering the Grid Services of EV Batteries. In *2021 IEEE Transportation Electrification Conference & Expo (ITEC).* (pp. 249-254). IEEE. (**Best Paper Award**)

2020

[7] Nie, J., Hu, Y., Wang, Y., Xia, S. and **Jiang, X.**, 2020, April. SPIDERS: Low-Cost Wireless Glasses for Continuous In-Situ Bio-Signal Acquisition and Emotion Recognition. In *International Conference on Internet-of-Things Design and Implementation (ACM IoTDI '20)*. ACM.

[8] Yang, D., Huang, J., Chang, X., **Jiang, X.**, and Xing, G., 2020, April. QID: Identifying Mobile Devices via Wireless Charging Fingerprints. In *International Conference on Internet-of-Things Design and Implementation (ACM IoTDI '20)*. ACM.

2019

[9] Wei, P. and **Jiang, X.**, 2019, November. Data-Driven Energy and Population Estimation for City-Wide Energy Footprinting. In *Proceedings of the 6th Conference on Systems for Energy-Efficient Built Environments, Cities, and Transportation (ACM BuildSys '19)*. ACM. (**Best Paper-Runner Up Award**)

2018

[10] de Godoy, D., Islam, B., Xia, S., Islam, M.T., Chandrasekaran, R., Chen, Y.C., Nirjon, S., Kinget, P. and **Jiang, X.**, 2018, April. PAWS: A Wearable Acoustic System for Pedestrian Safety. In *International Conference on Internet-of-Things Design and Implementation (ACM IoTDI '18)*. ACM. (23.6% acceptance rate)

[11] de Godoy, D., **Jiang, X.** and Kinget, P.R., 2018, April. A 78.2 nW 3-Channel Time-Delay-to-Digital Converter using Polarity Coincidence for Audio-based Object Localization. In *IEEE Custom Integrated Circuits Conference (IEEE CICC '18)*. IEEE.

[12] Wei, P., Xia, S. and **Jiang, X.**, 2018, July. Energy Saving Recommendations and User Location Modeling in Commercial Buildings. In *Proceedings of the 26th Conference on User Modeling, Adaptation and Personalization (ACM UMAP '18).* ACM.

[13] Jia, J., Xu, C., Pan, S., Xia, S., Wei, P., Noh, H.Y., Zhang, P. and **Jiang, X.**, 2018, October. Moisture Based Perspiration Level Estimation. In *Proceedings of the 2018 ACM International Joint Conference and 2018 International Symposium on Pervasive and Ubiquitous Computing and Wearable Computers (ACM UbiComp '18)*. ACM.

2017

[14] Wei, P., Chen, X., Vega, J., Xia, S., Chandrasekaran, R. and **Jiang, X.**, 2017, November. ePrints: a real-time and scalable system for fair apportionment and tracking of personal energy footprints in commercial buildings. In *Proceedings of the 4th ACM International Conference on Systems for Energy-Efficient Built Environments (ACM BuildSys '17)*. ACM. (31% acceptance rate) (**Best Paper-Runner Up Award**)

[15] Xia, S., Lu, Y., Wei, P. and **Jiang, X.**, 2017, September. SPINDLES: a smartphone platform for intelligent detection and notification of leg shaking. In *Proceedings of the 2017 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2017 ACM International Symposium on Wearable Computers (ACM UbiComp '17)*. ACM.

2015

[16] Li, Y., Y. Wang, Y. Cheng, X. Li, G. Xing, and **X. Jiang** (2015). QiLoc: A Qi wireless charging based system for robust user-initiated indoor location services. In *Proceedings of the 12th Annual International Conference on Sensing, Communication, and Networking (IEEE SECON '15),* IEEE.

2014

[17] Cheng, Y., X. Li, Z. Li, S. Jiang, Y. Li, J. Jia and **X. Jiang** (2014). AirCloud: a cloud-based air-quality monitoring system for everyone. In *Proceedings of the 12th ACM Conference on Embedded Network Sensor Systems (ACM SenSys '14)*. ACM. (18% acceptance rate)

2013

[18] Nirjon, S., R. F. Dickerson, P. Asare, Q. Li, D. Hong, J. A. Stankovic, P. Hu, G. Shen and **X. Jiang** (2013). Auditeur: a mobile-cloud service platform for acoustic event detection on smartphones. *Proceeding of the 11th annual international conference on Mobile systems, applications, and services (ACM MobiSys '13)*. Taipei, Taiwan, ACM: 403-416. (16% acceptance rate)

2012

[19] Hong, D., B. Zhang, Q. Li, S. Nirjon, R. Dickerson, G. Shen, **X. Jiang** and J. Stankovic (2012). SEPTIMU: continuous in-situ human wellness monitoring and feedback using sensors embedded in earphones. Proceedings of the *11th International Conference on Information Processing in Sensor Networks (IEEE IPSN '12),* IEEE. (19% acceptance rate)

[20] **Jiang, X.**, C.-J. M. Liang, K. Chen, B. Zhang, J. Hsu, J. Liu, B. Cao and F. Zhao (2012). Design and evaluation of a wireless magnetic-based proximity detection platform for indoor applications. *Proceedings of the 11th international conference on Information Processing in Sensor Networks (ACM IPSN '12)*. Beijing, China, ACM: 221-232. (15% acceptance rate) (**Runner Up to Best Presentation**)

[21] Nirjon, S., R. F. Dickerson, Q. Li, P. Asare, J. A. Stankovic, D. Hong, B. Zhang, **X. Jiang**, G. Shen and F. Zhao (2012). MusicalHeart: a hearty way of listening to music. *Proceedings of the 10th ACM Conference on Embedded Network Sensor Systems (ACM SenSys '12).* Toronto, Ontario, Canada, ACM: 43-56. (19% acceptance rate)

2010

[22] Dawson-Haggerty, S., **X. Jiang**, G. Tolle, J. Ortiz and D. Culler (2010). sMAP: a simple measurement and actuation profile for physical information. *Proceedings of the 8th ACM Conference on Embedded Networked Sensor Systems (ACM SenSys '10)*. Zurich, Switzerland, ACM: 197-210. (17% acceptance rate)

2009

[23] **Jiang, X.**, S. Dawson-Haggerty, P. Dutta and D. Culler (2009). Design and implementation of a high-fidelity AC metering network. *Proceedings of the 2009 International Conference on Information Processing in Sensor Networks (IEEE IPSN '09),* IEEE Computer Society: 253-264. (18% acceptance rate)

[24] **Jiang, X.**, M. V. Ly, J. Taneja, P. Dutta and D. Culler (2009). Experiences with a high-fidelity wireless building energy auditing network. *Proceedings of the 7th ACM Conference on Embedded Networked Sensor Systems (ACM SenSys '09).* Berkeley, California, ACM: 113-126. (18% acceptance rate)

2008

[25] Dutta, P., J. Taneja, J. Jeong, **X. Jiang** and D. Culler (2008). A building block approach to sensornet systems. *Proceedings of the 6th ACM conference on Embedded network sensor systems (ACM SenSys '08).* Raleigh, NC, USA, ACM: 267-280. (16% acceptance rate)

[26] He, M. M., E. M. Reutzel, **X. Jiang**, R. H. Katz, S. R. Sanders, D. E. Culler and K. Lutz (2008). An architecture for local energy generation, distribution, and sharing. *Energy 2030 Conference*, 2008. ENERGY 2008. IEEE.

[27] Jeong, J., **X. Jiang** and D. Culler (2008). Design and analysis of micro-solar power systems for wireless sensor networks. In *Proceedings of the 5th International Conference on Networked Sensing Systems*, 2008. INSS 2008. IEEE.

2007

[28] **Jiang, X.**, P. Dutta, D. Culler and I. Stoica (2007). Micro power meter for energy monitoring of wireless sensor networks at scale. *Proceedings of the 6th international conference on Information processing in sensor networks (ACM IPSN '07).* Cambridge, Massachusetts, USA, ACM: 186-195. (15% acceptance rate)

2005

[29] **Jiang, X.**, J. Polastre and D. Culler (2005). Perpetual environmentally powered sensor networks. *Proceedings of the 4th international symposium on Information processing in sensor networks (IEEE IPSN '05)*. Los Angeles, California, IEEE. (11% acceptance rate) (**Best Paper Award**)

[30] Whitehouse, K., C. Karlof, A. Woo, **F. Jiang** and D. Culler (2005). The effects of ranging noise on multihop localization: an empirical study. *Proceedings of the 4th international symposium on Information processing in sensor networks (IEEE IPSN '05)*, IEEE. (11% acceptance rate)

Refereed Journal Publications:

2022

[31] Liu, Y., Xia, S., Nie, J., Wei, P., Chang, J. and **Jiang, X.**, 2022. aiMSE: Towards an AI-Based Online Mental Status Examination. *IEEE Pervasive Computing*. *To appear.*

[32] Yang, D., Xing, G., Huang, J., Chang, X. and **Jiang, X.**, 2022. QID: Robust Mobile Device Recognition via a Multi-Coil Qi-Wireless Charging System. *ACM Transactions on Internet of Things*, 3(2), pp.1-27.

2021

[33] Nie, J., Liu, Y., Hu, Y., Wang, Y., Xia, S., Preindl, M. and **Jiang, X.**, 2021. SPIDERS+: A light-weight, wireless, and low-cost glasses-based wearable platform for emotion sensing and bio-signal acquisition. *Pervasive and Mobile Computing*, p.101424.

[34] Wei, P. and **Jiang, X.**, 2021. A Data-driven System for City-wide Energy Footprinting and Apportionment. *ACM Transactions on Sensor Networks (TOSN)*, *17*(2), pp.1-24.

[35] Meyer, H., Wei, P. and **Jiang, X.**, 2021. Intelligent Video Highlights Generation with Front-Camera Emotion Sensing. *Sensors*, 21(4), p.1035.

2020

[36] Wei, P., Xia, S., Chen, R., Qian, J., Li, C., and **Jiang, X.**, 2020. A Deep Reinforcement Learning Based Recommender System for Occupant-Driven Energy Optimization in Commercial Buildings. *IEEE Internet of Things Journal*. IEEE. **(Impact factor: 9.471)**.

2019

[37] Xia, S., de Godoy, D., Islam, B., Islam, M.T., Nirjon, S., Kinget, P.R. and **Jiang, X.**, 2019. Improving Pedestrian Safety in Cities using Intelligent Wearable Systems. *IEEE Internet of Things Journal*.

IEEE. (**Impact factor: 9.515**).

2018

[38] Wei, P., Chen, X., Vega, J., Xia, S., Chandrasekaran, R. and **Jiang, X.**, 2018. A Scalable System for Apportionment and Tracking of Energy Footprints in Commercial Buildings. *ACM Transactions on Sensor Networks (TOSN)*, *14*(3-4), p.22. ACM. (Impact factor: 2.322).

[39] Jia, J., Xu, C., Pan, S., Xia, S., Wei, P., Noh, H., Zhang, P. and **Jiang, X.**, 2018. Conductive Thread-Based Textile Sensor for Continuous Perspiration Level Monitoring. *Sensors*, *18*(11), p.3775. Elsevier. (Impact factor: 3.031).

[40] Jia, J., Yu, J., Hanumesh, R.S., Xia, S., Wei, P., Choi, H. and **Jiang, X.**, 2018. Intelligent and privacy-preserving medication adherence system. *Smart Health*, *9*, pp.250-264. Elsevier.

[41] Xia, S., Wei, P., Vega, J.M. and **Jiang, X.**, 2018. SPINDLES+: An adaptive and personalized system for leg shake detection. *Smart Health*, *9*, pp.204-218. Elsevier.

2011

[42] Katz, R. H., D. E. Culler, S. Sanders, S. Alspaugh, Y. Chen, S. Dawson-Haggerty, P. Dutta, M. He, **X. Jiang** and L. Keys (2011). "An information-centric energy infrastructure: The Berkeley view." *Sustainable Computing: Informatics and Systems* 1(1): 7-22. Elsevier.

2007

[43] **Jiang, X.**, J. Taneja, J. Ortiz, A. Tavakoli, P. Dutta, J. Jeong, D. Culler, P. Levis and S. Shenker (2007). "An architecture for energy management in wireless sensor networks." *SIGBED Rev.* 4(3): 31-36. ACM.

Book Chapters:

[44] **X. Jiang** (2016) Large Scale Air-Quality Monitoring in Smart and Sustainable Cities. *Smart Cities: Foundations and Principles*, Wiley.

[45] Cheng, Y., X. Li, Z. Li, S. Jiang and **X. Jiang** (2014). Fine-Grained Air Quality Monitoring Based on Gaussian Process Regression. *Neural Information Processing*, Springer International Publishing: 126-134.

Refereed Workshop and Conference Demo, Poster Publications:

2022

[46] Hou, K., Xia, S., Wu, J. and **Jiang, X.**, 2022, November. Demo Abstract: AI Stethoscope for Home Self-Diagnosis with Accurate Guidance. In Proceedings of the *20th ACM Conference on Embedded Networked Sensor Systems (SenSys '22). To appear.*

[47] Nie, J., Zhao, M., Xia, S., Sun, X., Shao, H., Fan, Y., Preindl, M. and **Jiang, X.**, 2022, November. Demo Abstract: AI Therapist for Daily Functioning Assessment and Intervention using Smart Home Devices. In Proceedings of the *20th ACM Conference on Embedded Networked Sensor Systems (SenSys '22). To appear.*

[48] Nie, J., Hu, L., Fan, Y., Preindl, M. and **Jiang, X.**, 2022, November. Poster Abstract: Human-Centric Data-Driven Optimization and Recommendation in EV-Interfaced Grid at City Scale. In *Proceedings of the 9th Conference on Systems for Built Environments (ACM BuildSys '22)*. ACM. *To appear.*

[49] Hou, K., Xia, S. and **Jiang, X.**, 2022, July. BuMA: Non-Intrusive Breathing Detection using Microphone Array. In *Proceedings of the 1st ACM International Workshop on Intelligent Acoustic Systems and Applications (IASA)* (pp. 1-6).

[50] Nie, J., Shao, H., Zhao, M., Xia, S., Preindl, M. and **Jiang, X.**, 2022, July. Conversational AI Therapist for Daily Function Screening in Home Environments. In *Proceedings of the 1st ACM International Workshop on Intelligent Acoustic Systems and Applications (IASA)* (pp. 31-36).

[51] Liu, Y., Zhao, M., Xia, S., Wu, E. and **Jiang, X.**, 2022, June. A sensorless drone-based system for mapping indoor 3D airflow gradients: demo abstract. In *Proceedings of the 20th Annual International Conference on Mobile Systems, Applications and Services (MobiSys)* (pp. 634-635).

[52] Zhao, M., Liu, Y., Dhupar, A., Hou, K., Xia, S. and **Jiang, X.**, 2022, June. A modular and reconfigurable sensing and actuation platform for smarter environments and drones: demo abstract. In *Proceedings of the 20th Annual International Conference on Mobile Systems, Applications and Services (MobiSys)* (pp. 626-627).

2021

[53] Xia, S., Chandrasekaran, R., Liu, Y., Yang, C., Rosing, T.S. and **Jiang, X.**, 2021, November. A Drone-based System for Intelligent and Autonomous Homes. In Proceedings of the *19th ACM Conference on Embedded Networked Sensor Systems (SenSys '21)*. (**Best Demo Award**)

[54] Xia, S. and **Jiang, X.**, 2021, May. Improving Acoustic Detection and Classification in Mobile and Embedded Platforms. In Proceedings of the 20th International Conference on Information Processing in Sensor Networks (co-located with CPS-IoT Week 2021) (pp. 402-403).

[55] Wei, P., Liu, Y., Kang, H., Yang, C. and **Jiang, X.**, 2021, May. A Low-Cost and Scalable Personalized Thermal Comfort Estimation System in Indoor Environments. In Proceedings of the *First International Workshop on Cyber-Physical-Human System Design and Implementation* (pp. 1-6).

[56] Wei, P., Liu, Y. and **Jiang, X.**, 2021, May. Low-Cost, Perspective Invariant and Personalized Thermal Comfort Estimation. In Proceedings of the *20th International Conference on Information Processing in Sensor Networks (IPSN '21).* (pp. 396-397).

2020

[57] Xia, S. and **Jiang, X.**, 2020, November. PAMS: Improving Privacy in Audio-Based Mobile Systems. In *Proceedings of the 2nd International Workshop on Challenges in Artificial Intelligence and Machine Learning for Internet of Things (ACM AIChallengeIoT '20).* ACM

[58] Hu, Y., Nie, J., Wang, Y., Xia, S. and **Jiang, X.**, 2020, April. Demo Abstract: Wireless Glasses for Non-contact Facial Expression Monitoring. In *Proceedings of the 19th International Conference on Information Processing in Sensor Networks (ACM/IEEE IPSN '20).* ACM/IEEE. (**Best Demo Award**)

2019

[59] Wei, P., Shi, H., Yang, J., Qian, J., Ji, Y. and **Jiang, X.**, 2019, September. City-scale vehicle tracking and traffic flow estimation using low frame-rate traffic cameras. Workshop Paper. In *Proceedings of the 2019 ACM International Joint Conference on Pervasive and Ubiquitous Computing and Proceedings of the 2019 ACM International Symposium on Wearable Computers* (pp. 602-610). ACM.

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2018

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[63] Wei, P. and **Jiang, X.**, 2018, November. A data-driven system for city-scale personal energy footprint estimations. Poster Abstract. In *Proceedings of the 5th Conference on Systems for Built Environments (ACM BuildSys '18)*. ACM.

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2017

[65] Godoy, D., Jia, J., **Jiang, X.**, 2017. RIO-40C - A Low-Cost Wearable Sunlight Exposure Monitor for Skincare. Demo Abstract. In *Proceedings of the 2nd ACM/IEEE International Conference on Internet-of-Things Design and Implementation (ACM/IEEE IoTDI '17).* ACM/IEEE.

2016

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[67] Mehra, M., Bagri, A., **Jiang, X.** and Ortiz, J., 2016, June. Image Analysis for Identifying Mosquito Breeding Grounds. Poster Abstract. In *2016 IEEE International Conference on Sensing, Communication and Networking (IEEE SECON '16 Workshops)*. IEEE.

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[69] Wei, P., Chen, X., Chandrasekaran, R., Song, F. and **Jiang, X.**, 2016, November. Adaptive and Personalized Energy Saving Suggestions for Occupants in Smart Buildings. Poster Abstract. In *Proceedings of the 3rd ACM International Conference on Systems for Energy-Efficient Built Environments (ACM BuildSys '16).* ACM. (**Best Poster Award**)

2014

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Conference on Embedded Systems for Energy-Efficient Buildings. Memphis, Tennessee, ACM: 184-185.

2013

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2012

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[75] Cheng, Y., K. Chen, B. Zhang, C.-J. M. Liang, **X. Jiang** and F. Zhao (2012). Accurate real-time occupant energy-footprinting in commercial buildings. Workshop Paper. *Proceedings of the Fourth ACM Workshop on Embedded Sensing Systems for Energy-Efficiency in Buildings (ACM BuildSys '12)*. Toronto, Ontario, Canada, ACM: 115-122.

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[78] Wang, J., F. Cheng, J. Wang, G. Shen and **X. Jiang** (2012). Genius-on-the-go: FM radio based proximity sensing and audio information sharing. Demo Abstract. *Proceedings of the 10th ACM Conference on Embedded Network Sensor Systems (ACM SenSys '12)*. Toronto, Ontario, Canada, ACM: 363-364.

[79] Zhang, B., K. Chen, Y. Cheng, C.-J. M. Liang, **X. Jiang** and F. Zhao (2012). Location-log: bringing online shopping benefits to the physical world with magnetic-based proximity detection. Workshop Paper. *Proceedings of ACM/IEEE IPSN*: 1-5.

2011

[80] **Jiang, X.**, C.-J. M. Liang, F. Zhao, K. Chen, J. Hsu, B. Zhang and J. Liu (2011). Creating interactive virtual zones in physical space with magnetic-induction. Demo Abstract. In *Proceedings of the 9th ACM Conference on Embedded Networked Sensor Systems (ACM SenSys '11)*. Seattle, Washington, ACM: 431-432. (**Best Demo Award**)

[81] Lanzisera, S., S. Dawson-Haggerty, **X. Jiang**, H. Y. Cheung, J. Taneja, J.-S. Lai, J. Ortiz, D. Culler and R. Brown (2011). Wireless electricity metering of miscellaneous and electronic devices in

buildings. Workshop Paper. *Future of Instrumentation International Workshop (FIIW)*, 2011, IEEE.

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[82] Dawson-Haggerty, S., J. Ortiz, **X. Jiang**, J. Hsu, S. Shankar and D. Culler (2010). Enabling green building applications. Workshop Paper. *Proceedings of the 6th Workshop on Hot Topics in Embedded Networked Sensors*. Killarney, Ireland, ACM: 1-5.

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2008

[85] **Jiang, X.**, S. Dawson-Haggerty, J. Taneja, P. Dutta and D. Culler (2008). Creating greener homes with IP-based wireless AC energy monitors. Poster Abstract. *Proceedings of the 6th ACM conference on Embedded network sensor systems (ACM SenSys '08).* Raleigh, NC, USA, ACM: 355-356.

[86] Whitehouse, K., A. Woo, **F. Jiang**, J. Polastre and D. Culler (2005). Exploiting the capture effect for collision detection and recovery. Workshop Paper. *Proceedings of the 2nd IEEE workshop on Embedded Networked Sensors:* 45-52. IEEE.

Patents:

2022

[87] US Patent Application #63301717: "Low-Cost Continuous In-Situ Multi-Person Screening System". **Xiaofan Jiang**, Peter Wei, Yanchen Liu, Kaiyuan Hou, Andrew Rundle. Columbia University. (2022)

2018

[88] US Patent Application: "Novel conductive thread-based wearable sensor for perspiration level sensing". **Xiaofan Jiang**, Ji Jia. Columbia University. (2018)

[89] US Patent Application: "Polarity-Coincidence Correlation Adaptive Time-Delay Estimation - PCC-ATDE". Peter Kinget, **Xiaofan Jiang**, Daniel de Godoy Peixoto. Columbia University. (2018)

2012

[90] US Patent Application, Pub No. US 2013/0073681 A1: "Creating Interactive Zones", **Xiaofan Jiang**, Chieh-Jan Mike Liang, Jeff Hsu, Caiquan Liu, Jie Liu, Feng Zhao. Microsoft. (2012)

[91] US Patent #US 8730048: "Earphone-based game controller and health monitor". Guo Bin Shen, **Xiaofan Jiang**. Microsoft. (2012)

2009

[92] US Patent #US 8,396,086 B1: "Scalable Association Scheme for TV White-space MIMO Wireless System". Carroll Philip Gossett, Yuan Yuan, Kevin C. Yu, **Xiaofan Jiang**, Michial Allen Gunter, Emmanouil Koukoumidise. Google Inc. (2009)

[93] US Patent #US 8,565,138 B1: "Random Shuffling Mechanism for MIMO Wireless System". Yuan Yuan, Kevin C. Yu, Emmanouil Koukoumidise, **Xiaofan Jiang**, Michial Allen Gunter, Carroll Philip Gossett. Google Inc. (2009)

[94] US Patent #US 8,699,411 B1: "Dynamic TDMA System for TV White Space MIMO Wireless". Carroll Philip Gossett, Yuan Yuan, Kevin C. Yu, Emmanouil Koukoumidise, **Xiaofan Jiang**, Michial Allen Gunter. Google Inc. (2009)

[95] US Patent #US 8,559,455 B1: "Dynamic Scheduling Scheme for TV White-space MIMO Wireless System". Yuan Yuan, Kevin C. Yu, Carroll Philip Gossett, Michial Allen Gunter, **Xiaofan Jiang**, David James Carmichael. Google Inc. (2009)

STUDENT SUPERVISION (COLUMBIA)

Graduated Ph.D. Students

- Stephen Xia, 2022. Now postdoctoral researcher at UC Berkeley and Columbia University
  Thesis: Selective Audio Filtering for Enabling Acoustic Intelligence in Mobile, Embedded, and Cyber-Physical Systems
- Peter Wei, 2021. First job: *Machine Learning Research Scientist*, **Meta** (formally Facebook)
  Thesis: Energy Footprinting and Human-Centric Building Co-Optimization with Multi-Task Deep Reinforcement Learning
- Daniel De Godoy Peixoto, 2019 (co-advised with Peter Kinget). First job: *Timing Application Engineer,* **Silicon Labs**
  Thesis: Ultra-Low-Power IoT Solutions for Sound Source Localization: Combining Mixed-Signal Processing and Machine Learning

Postdoctoral Researcher

- Stephen Xia, 2022.9-Present. Co-advised by Prabal Dutta, UC Berkeley
- Andrew Sonta, 2021.1-2021.12. Funding provided by DSI
  First job: *tenure track assistant professor,* **EPFL**

Current Ph.D. Students

- Jingping Nie, 2019.1-present
- Yanchen Liu, 2020.9-present
- Kaiyuan Hou, 2021.9-present
- Scott Zhao, 2022.9-present
- Emily Bejerano, 2022.9-present

MEDIA AND NEWS

- 2022. *Columbia University Mailman School of Public Health*. Fever Screening Tech Doubles as Early Warning System for Infectious Outbreaks.
- 2022. *EurekAlart!* (operated by AAAS). Cheaper, faster, safer way to screen temperatures.
- 2019. *New York Post*. Smart headphones could save pedestrians from being hit by cars.
- 2019. *IEEE Spectrum*. AI System Warns Pedestrians Wearing Headphones About Passing Cars.
- 2019. *Fast Company*. These headphones aren't pretty, but they just might save your life.
- 2019. *Mashable*. Headphones designed to save your life from reckless drivers.
- 2019. *Gizmodo*. These Noise-Canceling Headphones Will Alert You to All the Dangers You Can't Hear.
- 2019. *The Telegraph*. 'Smart' headphones designed to save pedestrian lives.
- 2019. *Engineering.com*. This Intelligent Headphone System Could Potentially Minimize Pedestrian Deaths.
- 2019. *India Times*. Researchers Build Headphones That Alerts You While Walking, May Save You From Deadly Accidents.
- 2019. *K-CBS San Francisco Radio Station* interview.
- 2018. *IEEE Signal Processing Magazine*. Signal Processing Supports a New Wave of Audio Research.
- 2017. *EurekAlart!* Science News. Data Science Institute professor leads team to design smart headphones.
- 2016. *O Globo*. Xiaofan Jiang, electrical engineer: 'Rich are extravagant in consumption because it is cheap.
- 2016. *O'Reilly Report* Ambient Computing: How Invisible Hardware, Self-Starting Apps, and Nonstop Surveillance Reshapes Our Public and Private Lives
- 2016. *O'Reilly Report* Are Your Networks Ready for the IoT?
- 2015. *Columbia Engineering Magazine*: Fred Jiang | Building Systems to Collect, Exchange, and Analyze Data
- 2013-2014. "PAM: Pervasive Air-Quaity Monitoring" project was featured in: *CCTV*, *People's Daily*, *Nikkei Technology*, *Chinese Computer World*, *DragonTV*, *Nanfang Weekend*, *Business Times*
- 2012-2013. "SEPTIMU / MusicalHeart / LifeX" project was featured in: *The Economist*, *New Scientist*, *CNET*, *Gizmodo*

INVITED TALKS

Note: some talk titles are kept generic to incorporate multiple research projects, and are constantly updated with new material

- **Washington University at St. Louis,** St. Louis 2022
  AIoT for Urban Safety, Health, and Mental Wellness
- **Columbia University School of Internal and Public Affairs,** New York 2022
  Guest Lecture on Smart Cities: Technologies, Applications, and Vision
- **Tsinghua University**, Beijing 2022

Intelligent Systems of the People by the People for the People

- **Yale University,** New Haven 2022
  Intelligent Systems of the People by the People for the People
- **Georgia Tech,** Atlanta 2022
  Intelligent Systems of the People by the People for the People
- **University of Cambridge,** Cambridge 2022
  Intelligent Systems of the People by the People for the People
- **Rutgers University,** New Brunswick 2022
  Intelligent Systems of the People by the People for the People
- **The University of Texas at Austin**, Austin 2022
  Guest lecture on Smart Cities
- **University of Michigan**, Ann Arbor 2022
  Intelligent Systems for Safer, Healthier, and Sustainable Living
- **University of Cambridge,** Cambridge 2021
  Intelligent Systems for Safer, Healthier, and Sustainable Living
- **Oxford University,** Oxford 2021
  Intelligent Systems for Safer, Healthier, and Sustainable Living
- **University of California, Los Angeles**, Los Angeles 2019
  Seminar: Intelligent and Connected Systems for Sensible Urban Living
- **University of Illinois, Urbana-Champaign**, Champaign 2019
  Seminar: Intelligent and Connected Systems for Sensible Urban Living
- **University of California, Berkeley**, Berkeley 2019
  Seminar: Intelligent and Connected Systems for Sensible Urban Living
- **University of Pennsylvania,** Philadelphia 2019
  Seminar: Intelligent and Connected Systems for Sensible Urban Living
- **Singapore Nanyang Technological University**, Singapore 2018
  Chinese University of Hong Kong, Hong Kong 2018
  Hong Kong Polytechnic University, Hong Kong 2018
  Tsinghua University, Beijing 2017
  Seminars: Intelligent and Connected Systems for Sensible Urban Living
- **COPPA UFRJ,** Rio de Janeiro 2016
  Keynote: Sensing and the City - Air Quality and Building Energy
- **IBM T.J. Watson Research Center**, Yorktown 2015
  Seminar: City-Scale Air Pollution Monitoring
- **University of Virginia**, Charlottesville 2015
  Seminar: IoT Meets Physical Analytics
- **Carnegie Mellon University**, Pittsburg 2015
  Seminar: Bringing Together Internet-of-Things with Physical Analytics
- **University of Michigan at Ann Arbor**, Ann Arbor 2014
  Invited Talk: Air-Quality Monitoring and Data Analytics
- **Intel Developers Forum (IDF)**, Shenzhen 2014

Talk: End-to-end Internet of Things Solutions on Intel® Architecture

- **First Workshop on Internet of Things Applications,** Beijing 2012
  Keynote: Intelligent Modules for Building Internet-of-Things
- **Intl. Conference on Human Probes and Smartphone Sensing**, Chiang Mai, 2011
  Keynote: People-centric Sensing – from Smartphones to Smartplaces
- **National Taiwan University**, Taipei 2011
  Lecture: Bridging the Gap between Humans and the Physical World – A Step Toward Reducing Energy Consumption and Increasing Comfort
- **CCF Advanced Disciplines Lectures**, Beijing 2011
  Lecture: Internet of Humans and Things: Connecting Humans to the Physical World with Virtual Zones
- **Emerging CPS Applications Workshop**, Stockholm, 2010
  Rethinking the Energy Infrastructure from a Cyber-Physical Perspective
- **Lawrence Berkeley National Laboratory**, Berkeley 2008
  Expediting Home Energy Conservation through Innovative Marketing and the Web 2.0 Community