

Xiaofan (Fred) Jiang

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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

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

AWARDS AND HONORS

- ACM SIGMOBILE Research Highlight (2025)
- Best Paper Award, HumanSys (2025)
- Best Paper Award, ACM MobiSys (2024)
- Audience Choice Award, ACM MobiSys (2024)
- Best Demo Runner-Up Award, ACM MobiCom (2024)
- 2nd Place, ACM Student Research Competition (SRC) (2024)
- Best Paper Award, ACM BuildSys (2023)
- Best Demo Award, ACM/IEEE IPSN (2023)
- Best Demo Runner-Up Award, ACM SenSys (2022)
- Best Poster Candidate, ACM BuildSys (2022)
- 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: \$7.4M

Individual share (including internal funding): \$3.6M

Total funding of all projects: \$59.9M

Industry Grant: Apple Scholars in AI/ML PhD Fellowship

Company: Apple Inc.

PI Status: PI

Date: 9/1/2023

Funding: ~\$200,000

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 - 5/31/2027

Funding: \$535,838

Gift: Intelligent Embedded Systems Research

Company: Tencent Americas

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

- TPC Co-Chair, ACM SenSys '25
- Chair, Test of Time Award Committee, ACM BuildSys 2026

- Chair, Distinguished Reviewer Board, ACM Transactions on Computing for Healthcare
- Steering Committee, ACM BuildSys
- Steering Committee, ACM e-Energy
- Steering Committee, FMSys '25
- Awards Chair, e-Energy 2024
- General Chair, FMSys '24
- Vice Chair, ACM SIGEnergy, 2023-Present
- General Chair, ACM/IEEE IPSN '23
- TPC co-Chair, ACM e-Energy '23
- Steering Committee Chair, ACM BuildSys, 2022-2024
- 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, '23
- ACM BuildSys '10, '12, '13, '17, '18, '24
- ACM/IEEE IPSN '11, '12, '18
- ACM/IEEE IoTDI '17, '18, '19
- ACM MobiSys '14, '20, '21, '24
- 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)

Grant Proposal Review Panel

- NSF CISE CNS/CSR
- NSF CISE CNS/NeTS
- NSF CSR CAREER
- NSF CPS CAREER

Editorial

- Lead Guest Editor, IEEE Internet Computing Magazine, Special Issue on Wearable Computing (2025)
- Associate Editor, ACM HEALTH
- Associate Editor, ACM TIOT
- Associate Editor, ACM TOSN
- Guest Editor, ACM HEALTH Special Issue on Large Language Models, Conversational Systems, and Generative AI in Health, 2024
- 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

- Test of Time Committee, ACM SenSys
- Dissertation Award Committee Chair, ACM SIGEnergy
- Awards Committee, CPS Rising Star '24
- ACM SIGEnergy Dissertation Award Committee, '24
- Local Arrangement co-Chair, ACM SIGCOMM '20, '23
- 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)
- Chair, Electrical Engineering PhD Committee (2024 – 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

Please refer to my Google Scholars page for an updated list:

<https://scholar.google.com/citations?user=gTA4aQAAAAAJ>

Patents:

2022

- [1] 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

- [2] US Patent Application: "Novel conductive thread-based wearable sensor for perspiration level sensing". **Xiaofan Jiang**, Ji Jia. Columbia University. (2018)
- [3] US Patent Application: "Polarity-Coincidence Correlation Adaptive Time-Delay Estimation - PCC-ATDE". Peter Kinget, **Xiaofan Jiang**, Daniel de Godoy Peixoto. Columbia University. (2018)

2012

- [4] 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)
- [5] US Patent #US 8730048: "Earphone-based game controller and health monitor". Guo Bin Shen, **Xiaofan Jiang**. Microsoft. (2012)

2009

- [6] 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)
- [7] 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)
- [8] 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)
- [9] 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)

TEACHING, EDUCATION, AND OUTREACH

Student Supervision (Columbia)

Graduated Ph.D. Students

- Jingping Nie (co-advised with Matthias Preindl). Now Assistant Professor at **University of North Carolina at Chapel Hill**
Thesis: Embedded AI and Sensing for Wellness, Health, and Sustainability: Intelligent, Privacy-Aware Wearable Devices and AIoT Systems

- Qijia Shao (co-advised with Xia Zhou). Now Assistant Professor at **The Hong Kong University of Science and Technology**
Thesis: Weaving Physical and Physiological Sensing with Computational Fabrics
- Stephen Xia, 2022. Now Assistant Professor at **Northwestern University**
Thesis: Selective Audio Filtering for Enabling Acoustic Intelligence in Mobile, Embedded, and Cyber-Physical Systems
- Peter Wei, 2021. Now Machine Learning Engineer at **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). Now Module Design Engineer at **Apple**
Thesis: Ultra-Low-Power IoT Solutions for Sound Source Localization: Combining Mixed-Signal Processing and Machine Learning

Postdoctoral Researcher

- Stephen Xia, 2022.9-2023.5. 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

- Yanchen Liu, 2020.9-present
- Kaiyuan Hou, 2021.9-present
- Scott Zhao, 2022.9-present
- Emily Bejerano, 2022.9-present
- Lilin Xu, 2024.9-present
- Yuang Fan, 2025.1-present
- Federico Tondolo, 2026.1-present

MEDIA AND NEWS

- 2023. *Apple*. [Announcing the 2023 Apple Scholars in AI/ML.](#)
- 2022. *Columbia Climate School*. [Tackling Crowd Management in Subways During Pandemics.](#)
- 2022. *Columbia University Mailman School of Public Health*. [Fever Screening Tech Doubles as Early Warning System for Infectious Outbreaks.](#)
- 2022. *EurekAlert!* (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. *EurekAlert! 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-Quality 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

- **Princeton University**, United States, 2026
From AIoT to Physical AI: Embodied and Agentic Intelligence in the Real World
- **The Third International Workshop on Human-Centered Sensing, Modeling, and Intelligent Systems (HumanSys)**, United States, 2025
Embedded Intelligence for Health and Wellness
- **Mailman School of Public Health**, Columbia University, USA, 2025
Embedded AI for Health and Wellness
- **McMaster University**, Canada, 2025
Embedded AI for Health and Wellness
- **Worcester Polytechnic Institute**, United States, 2025
Embedding Intelligence: The Convergence of AIoT and Embodied AI
- **Ohio State University**, United States, 2024
From AIoT to Embodied AI – The Future of AI is Embedded

- **Nanyang Technological University**, Singapore, 2023
AIoT for Safer, Healthier, and Smarter Environments
- **City University of Hong Kong**, Hong Kong, China, 2023
AIoT for Safer, Healthier, and Smarter Environments
- **Hong Kong University of Science and Technology**, Hong Kong, China, 2023
AIoT for Safer, Healthier, and Smarter Environments
- **Chinese University of Hong Kong**, Hong Kong, China, 2023
AIoT for Safer, Healthier, and Smarter Environments
- **University of Cambridge**, Cambridge, UK, 2023
AIoT for Safer, Healthier, and Smarter Environments
- **University of California, Berkeley**, Berkeley 2023
AIoT for Safer, Healthier, and Smarter Environments
- **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