

Shiwei Fang

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EDUCATION

- 2015 - 2021 **University of North Carolina at Chapel Hill**, Chapel Hill, NC
Doctor of Philosophy (Ph.D.) in Computer Science
Advisor: *Shahriar Nirjon*
Dissertation Title: *Using Radio Frequency and Motion Sensing to Improve Camera Sensor Systems*
- 2011 - 2015 **SUNY, Stony Brook University**, Stony Brook, NY
Bachelor of Engineering in Computer Engineering
Minor in Computer Science

PROFESSIONAL EXPERIENCE

- 2023 - Present **Augusta University**, Augusta, GA
School of Computer and Cyber Sciences
Assistant Professor
- 2021 - 2023 **University of Massachusetts Amherst**, Amherst, MA
Manning College of Information and Computer Sciences
Postdoctoral Research Associate
- Summer 2020 **Bosch Research and Technology Center**, Pittsburgh, PA
AI for Multimodal Sensor Fusion Research Intern
- Summer 2019 **Bosch Research and Technology Center**, Pittsburgh, PA
AI for Multimodal Sensor Fusion Research Intern

PUBLICATIONS

Journal & Conference

1. Marlin, Benjamin M., Niranjan Suri, **Shiwei Fang**, Mani B. Srivastava, Colin Samplawski, Ziqi Wang, and Maggie Wigness. "IoBT-MAX: a Multimodal Analytics eXperimentation Testbed for IoBT Research." In *MILCOM 2023-2023 IEEE Military Communications Conference (MILCOM)*, IEEE, Oct. 2023
2. Sirajum Munir*, Hongkai Chen*, **Shiwei Fang***, Mahathir Monjur, Shan Lin, Shahriar Nirjon. "CarFi: Rider Side Localization using Wi-Fi CSI". 2023 *IEEE 20th International Conference on Mobile Ad Hoc and Smart Systems (MASS)*, IEEE, Sept. 2023. (* equal contribution)
3. Colin Samplawski, **Shiwei Fang**, Ziqi Wang, Deepak Ganesan, Mani Srivastava, and Benjamin M. Marlin. "Heteroskedastic geospatial tracking with distributed camera networks". In *Proceedings of the Thirty-Ninth Conference on Uncertainty in Artificial Intelligence (UAI '23)*, July 2023.
4. **Shiwei Fang**, Jin Huang, Colin Samplawski, Deepak Ganesan, Benjamin Marlin, Tarek Abdelzaher, and Maggie B. Wigness. "Optimizing Intelligent Edge-clouds with Partitioning, Compression and Speculative Inference." *Military Communication Conference (MILCOM)*. IEEE, Dec. 2021.
5. **Shiwei Fang**, Ketan Mayer-Patel, and Shahriar Nirjon. "Exploiting Scene and Body Contexts in Controlling Continuous Vision Body Cameras." *Ad Hoc Networks Journal, Elsevier*, Volumn 113, Mar. 2021.
6. **Shiwei Fang**, Md Tamzeed Islam, Sirajum Munir, Shahriar Nirjon. "EyeFi: Fast Human Identification Through Vision and WiFi-based Trajectory Matching." In *Proceedings of the 16th International Conference on Distributed Computing in Sensor Systems (DCOSS)*, IEEE, June 2020.
7. **Shiwei Fang**, Shahriar Nirjon. "SuperRF: AI-Enhanced Fast 3D RF Representation Using Low-Cost mmWave Radar." In *Proceedings of the International Conference on Embedded Wireless Systems and Networks (EWSN)*, ACM, Feb. 2020.
8. **Shiwei Fang**, Ketan Mayer-Patel, and Shahriar Nirjon. "ZenCam: Context-Driven Control of Autonomous Body Cameras." In *Proceedings of the 15th International Conference on Distributed Computing in Sensor Systems (DCOSS)*, IEEE, May 2019. **Best Paper Award**.
9. **Shiwei Fang**, Emre Salman, "Low Swing TSV Signaling using Novel Level Shifters with Single Supply Voltage," In *Proceedings of the IEEE International Symposium on Circuits and Systems (ISCAS)*. IEEE, May 2015.

Workshop & Preprint

1. Rastikerdar, Mohammad Mehdi, Jin Huang, **Shiwei Fang**, Hui Guan, and Deepak Ganesan. "Efficient IoT Inference via Context-Awareness". *arXiv preprint arXiv:2310.19112*. Oct. 2023
2. Yue Zhang, **Shiwei Fang**, Carlos Ruiz, Zhizhang Hu, Shubham Rohal, and Shijia Pan. "Augmenting Vibration-Based Customer-Product Interaction Recognition with Sparse Load Sensing". In *Proceedings of Cyber-Physical Systems and Internet of Things Week 2023 (CPS-IoT Week '23)*, ACM. May 2023
3. **Shiwei Fang**, Ankur Sarker, Ziqi Wang, Mani Srivastava, Benjamin Marlin, and Deepak Ganesan. "Design and Deployment of a Multi-Modal Multi-Node Sensor Data Collection Platform." In *The Fifth International Workshop on Data: Acquisition To Analysis (DATA)*. ACM, Nov. 2022.
4. **Shiwei Fang**, Sirajum Munir, Shahriar Nirjon. "Dataset: Person Tracking and Identification using Cameras and Wi-Fi Channel State Information (CSI) from Smartphones." In *Proceedings of the 3rd Workshop on Data Acquisition To Analysis (DATA)*. ACM, Nov. 2020.
5. **Shiwei Fang**, Ron Alterovitz, Shahriar Nirjon. "Non-Line-of-Sight Around the Corner Human Presence Detection Using Commodity WiFi Devices." In *Proceedings of the 2019 Workshop on Device-Free Human Sensing (DFHS)*. ACM, Nov. 2019.
6. **Shiwei Fang**, Ketan Mayer-Patel, and Shahriar Nirjon. "Distributed Adaptive Model Predictive Control of a Cluster of Autonomous and Context-Sensitive Body Cameras." In *Proceedings of the 2017 Workshop on Wearable Systems and Applications (WearSys)*. ACM, June 2017.

Poster & Demo

1. **Shiwei Fang**, Sirajum Munir, Shahriar Nirjon. "Demo Abstract: Fusing WiFi and Camera for Fast Motion Tracking and Person Identification." In *Proceedings of the 18th ACM Conference on Embedded Networked Sensor Systems (SenSys)*. ACM, 2020.
2. **Shiwei Fang**, Shahriar Nirjon. "Demo Abstract: AI-Enhanced 3D RF Representation Using Low-Cost mmWave Radar." In *Proceedings of the 16th ACM Conference on Embedded Networked Sensor Systems (SenSys)*. ACM, 2018.

Patents

1. Munir, Sirajum, **Shiwei Fang**, Yunze Zeng, and Vivek Jain. "MOBILE DEVICE RANGE FINDER VIA RF POWER." U.S. Patent Application 17/876,277, filed February 8, 2024.
2. Munir, Sirajum, **Shiwei Fang**, Yunze Zeng, and Vivek Jain. "VEHICLE TO TARGET RANGE FINDER VIA RF POWER." U.S. Patent Application 17/876,256, filed February 1, 2024.

MENTORSHIP EXPERIENCE

1. **Mohammad Rastikerdar**, PhD Student, UMass Amherst
2. **Yue Zhang**, PhD Student, UC Merced
3. **Mahathir Monjur**, PhD Student, UNC Chapel Hill
4. **Aritro Deb Sarker**, Undergraduate, WPI
5. **Krish Patel**, Undergraduate, WPI

TEACHING EXPERIENCE

Teaching (Augusta University):

Spring 2024 CSCI 4950/6950: Mobile Health Analytics

Co-Teaching (UMass Amherst):

Spring 2023 CS328: Mobile Health Sensing and Analytics

Graduate Teaching Assistant (UNC Chapel Hill):

Fall 2017 COMP 581: Introduction to Robotics

Fall 2017 COMP 430: Mobile Computing Systems

Spring 2017 COMP 520: Compiler

Fall 2016 COMP 411: Computer Organization

Spring 2016 COMP 590: Mobile Computing Systems

Undergraduate (Stony Brook University):

2013 - 2015 IEEE Stony Brook Student Branch, Instructor

Fall 2012 Teaching Assistant for AMS 151

INVITED & CONFERENCE TALKS

- Nov. 2022 *Design and Deployment of a Multi-Modal Multi-Node Sensor Data Collection Platform*, International Workshop on Data: Acquisition To Analysis (DATA '22) (SenSys + BuildSys), 2022
- Dec. 2021 *Optimizing Intelligent Edge-clouds with Partitioning, Compression and Speculative Inference*, IEEE Military Communications Conference (MILCOM), 2021
- Mar. 2021 *Multimodal Sensing with Vision and WiFi*, GE Research
- Oct. 2020 *Improved Camera Sensing Systems using Multimodal Sensor Fusion*, UC Merced Electrical Engineering and Computer Science (EECS)
- June 2020 *EyeFi: Fast Human Identification Through Vision and WiFi-based Trajectory Matching*, IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS), 2020
- Feb. 2020 *SuperRF: AI-Enhanced Fast 3D RF Representation Using Low-Cost mmWave Radar*, ACM International Conference on Embedded Wireless Systems and Networks (EWSN), 2020
- Nov. 2019 *Non-Line-of-Sight Around the Corner Human Presence Detection Using Commodity WiFi Devices*, ACM Workshop on Device-Free Human Sensing (DFHS), BuildSys 2019
- May 2019 *ZenCam: Context-Driven Control of Autonomous Body Cameras*, IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS), 2019 **Best Paper Award**
- June 2017 *Distributed Adaptive Model Predictive Control of a Cluster of Autonomous and Context-Sensitive Body Cameras*, ACM Workshop on Wearable Systems and Applications (WearSys), MobiSys 2017

PROFESSIONAL SERVICES

Co-Chair

- SenSys/BuildSys Workshop on Data: Acquisition to Analysis (DATA), 2022

Technical Program Committee (TPC)

- IEEE / ACM CHASE 2023
- IEEE ICC SAC E-Health, 2023
- BuildSys, 2022
- SenSys/BuildSys Workshop on Data: Acquisition to Analysis (DATA), 2020, 2021
- BuildSys Posters and Demos Session, 2020
- SenSys Posters and Demos Session, 2019

Session Chair

- ACM BuildSys 2022
- ACM Workshop on Intelligent Acoustic Systems and Applications (IASA), MobiSys 2022

Primary Reviewer

- IEEE Radar Conference (RadarConf), 2023
- ACM Transactions on Sensor Networks (TOSN), 2022
- ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies (IMWUT), 2022
- International Journal of Wireless Information Networks, 2022
- Digital Signal Processing, 2021, 2022
- INFOCOM, 2020, 2021
- Data in Brief, 2020
- MMSys, 2018
- NSysS, 2018

Publicity Chair

- IEEE MASS 2023

Web Chair

- SenSys/BuildSys Workshop on Data: Acquisition to Analysis (DATA), 2020, 2021