ANRAN WANG

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Education Background

- **Ph.D.** in Computer Science and Engineering, University of Washington   Sep 2021 (expected)
  Supervised by Prof. *Shyam Gollakota*
- **M.Sc.** in Computer Science and Engineering, University of Washington   Jun 2020
- **B.Eng.,** in Computer Science and Technology, Beihang University (BUAA)   Jun 2014

Experiences

- **Part-time Signal Processing Engineer Intern,** *Sound Life Science*   Jul 2019 – Sep 2019; Jun 2020-Sep 2020
  Real-time contactless respiratory & motion monitoring system using smart speakers at scale
- **Research Intern,** *Magic Leap*   Jun 2017 – Sep 2017
  Continuous wireless controller motion tracking using sensor fusion (ultrasound & IMU)
- **Software Development Engineer Intern,** *YUANTIKU*   Mar 2016 – Jun 2016
  UDP-TCP transport layer proxy to reduce the transmission latency between mobile clients and server
- **Research Assistant,** *Beihang University (ACT Lab)*   Jul 2014 – Mar 2016
  Reliable & high-speed screen-camera data communication between smartphones
- **Research Intern,** *Microsoft Research Asia (Wireless and Networking Group)*   Sep 2013 – Jun 2014
  Imperceptible screen-camera data communication and visual SLAM on phones
- **Software Development Engineer Intern,** *Baidu (Infrastructure Group)*   June 2012 – Sep. 2012
  Adaptation and deployment of open-source distributed queue systems (Gearman & Twitter Kestrel)

Research & Major Publications

- Acoustic signal processing & its applications on human sensing

  Contactless Cardiac RR-Interval Measurement using Smart Speakers   *(In preparation)*
  Anran Wang, Arun Sridhar and Shyamnath Gollakota

  Contactless Infant Monitoring using White Noise [Licensed to Sound Life Science, Inc.]   *MobiCom*, 2019
  Anran Wang, Jacob Sunshine and Shyamnath Gollakota.

  MilliSonic: Pushing the Limit of Acoustic Motion Tracking   *CHI*, 2019
  Anran Wang and Shyamnath Gollakota.

- Wireless signal processing & its applications on the Internet of Things

  Living IoT: A Flying Wireless Platform on Live Insects   *MobiCom*, 2019
  Anran Wang*, Vikram Iyer*, Rajalakshmi Nandakumar*, Sawyer B. Fuller and Shyamnath Gollakota

  DeepSense: Enabling Carrier Sense in Low-Power Wide Area Networks Using Deep Learning   *Arxiv*, 2019
  Anran Wang*, Justin Chan*, Arvind Krishnamurthy and Shyamnath Gollakota

  Airdropping Sensor Networks from Drones and Insects   *to appear at MobiCom*, 2020
  Vikram Iyer, Maruchi Kim, Qiuyue Xue, **Anran Wang** and Shyamnath Gollakota

- Side-channel communication & wireless networking

  FM Backscatter: Enabling Connected Cities and Smart Fabrics   *NSDI,* 2017
  Anran Wang*, Vikram Iyer*, Vamsi Talla, Joshua R. Smith and Shyamnath Gollakota

  INFRAME++:Achieve Simultaneous Screen-Human Viewing and Hidden Screen-Camera Communication *MobiSys*, 2015
  Anran Wang, Zhuoran Li, Chunyi Peng, Guobin Shen, Gan Fang, Bing Zheng

INFRAME: Multiflexing Full-Frame Visible Communication Channel for Humans and Devices   *HotNets, 2014*
Anran Wang, Chunyi Peng, Ouyang Zhang, Guobin Shen, Bing Zheng

Enhancing Reliability to Boost the Throughput over Screen-Camera Links   *MobiCom, 2014*
Anran Wang, Shuai Ma, Chunming Hu, Jinpeng Huai, Chunyi Peng, Guobin Shen

Surface MIMO: Using Conductive Surfaces for MIMO Between Small Devices   *MobiCom, 2018*
Justin Chan, **Anran Wang**, Vikram Iyer and Shyamnath Gollakota

- Demos & Posters

Poster: Contactless Infant Monitoring using White Noise   *MobiCom, 2019*
Anran Wang, Jacob Sunshine and Shyamnath Gollakota.

Achieving Simultaneous Screen-Human Viewing and Hidden Screen-Camera Communication   *MobiSys, 2015*
Anran Wang, Zhuoran Li, Chunyi Peng, Guobin Shen, Gan Fang, Bing Zheng

A Robust Barcode System for Data Transmissions over Screen-Camera Links   *MobiCom, 2014*
Anran Wang, Shuai Ma, Chunming Hu, Jinpeng Huai, Chunyi Peng, Guobin Shen

 (*: co-primary authors)

Patents

- **Anran Wang**, Jacob Sunshine, Shyamnath Gollakota. *Systems And Methods For Contactless Motion Tracking*
- **Anran Wang**, Shyamnath Gollakota. *Systems, Apparatuses, And Methods For Acoustic Motion Tracking*
- **Anran Wang**, Laura Trutoiu, Brian T. Schowengerdt, Nicholas Vallidis. *Mixed reality device tracking*

Skills

- **Programming:** Java/Scala/Kotlin; C/C++; Python; C#; Matlab; Verilog HDL
- **Platform & Tools:** Android; GNU Radio; PyTorch; Microcontroller; FPGA; CUDA; PCB design
- **Domain knowledge:** embedded real-time system; audio processing; wireless networking; machine learning

Teaching Experience

- *UW CSE 373: Data Structure and Algorithms*   Fall, 2017
- *UW CSE 561: Computer Networks*   Winter, 2018

Professional Services

- External Review Committee, MobiCom 2019
- Reviewer, IEEE Transaction on Mobile Computing
- Reviewer of CHI 2020, IMWUT 2020, MobileHCI 2020, UIST 2020, etc.

Achievements and Awards

- UW Reality Lab Fellowship, 2018 & 2020
- Wissner-Slivka Graduate Fellowship in Computer Science & Engineering, University of Washington, 2016
- Graduate National Scholarship, 2015
- Bachelor Thesis Award of Beihang University, 2014
- Beihang University Gold Medal (highest honor to top graduated students), 2014
- Microsoft Young Fellow Scholarship Award, 2013
- Undergraduate National Scholarship, 2013
- China Computer Federation Outstanding Student Award (to the top 100 Computer Science students), 2012
- ACM/ICPC (International Collegiate Programming Contest) Asia Beijing, Bronze Medal, 2011