SHUQIN DONG

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RESEARCH INTERESTS

Biomedical radar system, Signal Processing algorithm, Radar-based Sleep monitoring, Contactless accurate cardiopulmonary activity detection

EXPERIENCE

Shanghai Jiao Tong University, China Apr. 2021 - Present
Ph.D. candidate in electronic information, advised by Prof. Changzhan Gu.

Huawei, China May 2020 - Apr. 2021
Software algorithm engineer in 2012 Lab.

Zhejiang University, China Sep. 2017 - Mar. 2020
M.S. in electronic science and technology, advised by Prof. Lixin Ran.

Xidian University, China Sep. 2013 - June 2017
B.S. in electronic information engineering

RESEARCH EXPERIENCE

Doppler Cardiogram Detection 2018 - 2021

- Design and develop high-sensitivity and high-linearity millimeter-wave radar sensor system.
- Design linear and robust radar baseband demodulation algorithm.
- Design Doppler cardiogram extraction algorithm.

Cardiovascular Disease Detection 2021 - Present

- Build vital signs signals datasets detected by radar in clinical environment.
- Develop cardiopulmonary anomaly representation algorithm and analysis models with machine learning algorithm.

Radar-based Sleep monitoring 2022 - Present

- Build sleep datasets based on radar signals.
- Develop sleep stages classification and sleep respiratory disorder detection algorithm with machine learning and deep learning algorithms.

GRANTS & AWARDS

MTT-S Graduate Fellowship for Medical Applications	2023, IEEE MTT-S
National Scholarship (for Ph.D. candidate)	2022, SJTU, China
CICAI 2022 Best Demo Runner-up Award	2022, CICAI
IEEE MTT-S IWS 2022 FLASH Competition Best Paper Award	2022, IEEE MTT-S
National Scholarship	2019, ZJU, China
IEEE MTT-S IWS 2018 Student Paper Competition Honorable Mention Award	2018, IEEE MTT-S

PROFESSIONAL ACTIVITIES

- **Reviewer** for IEEE Journal of Electromagnetics, RF, and Microwaves in Medicine and Biology.
- **Reviewer** for IEEE Transactions on Microwave Theory and Techniques.
- **Reviewer** for IEEE Microwave and Wireless Technology Letters.
- **Reviewer** for 2022 IEEE International Microwave Biomedical Conference.
- **Reviewer** for 2022 Asilomar Conference on Signals, Systems, and Computers.

LANGUAGE & SKILLS

- **Language:** Chinese (Native), English (CET-4: 554; CET-6: 482)
- **Tools:** Matlab(★★★½), Python(★★½☆), C++(★★½☆), Cadence(★★½☆), HFSS(★★★☆), Altium designer(★★★☆).

PUBLICATIONS

[1] **S. Dong**, Y Li, J Lu, Z Zhang, C Gu, J Mao. *Accurate detection of Doppler cardiograms with a parameterized respiratory filter technique using a K-band radar sensor*, in IEEE Transactions on Microwave Theory and Techniques, 2022.

[2] **S. Dong**, L Wen, Z Zhang, C Gu, J Mao. *Contactless measurement of human systolic time intervals based on Doppler cardiograms in clinical environment*, in IEEE Microwave and Wireless Components Letters, 2022.(selected as **Top50 Papers** of 2022 IEEE International Microwave Symposium, converted to MWCL)

[3] **S. Dong**, Y Zhang, C Ma, C Zhu, Z Gu, Q Lv, B Zhang, C Li, L Ran. *Doppler cardiogram: A remote detection of human heart activities*, in IEEE Transactions on Microwave Theory and Techniques, 2019.

[4] **S. Dong**, Y Li, J Lu, Z Zhang, C Gu. *Accurate detection of Doppler cardiograms with a parameterized respiratory filter technique using a K-band radar sensor*, Submitted to IEEE Transactions on Microwave Theory and Techniques, 2023.

[5] Y. Zhang, **S. Dong**, C Zhu, M Balle, B Zhang, L Ran. *Hand gesture recognition for smart devices by classifying deterministic Doppler signals*, in IEEE Transactions on Microwave Theory and Techniques, 2020.

[6] W. Xu, **S. Dong**, C Gu, J Mao. *A Novel Calibration-Free Motion Sensing Technique With Single-Channel Interferometric Radars*, in IEEE Transactions on Microwave Theory and Techniques, 2022.

[7] Y Zhang, C Zhu, **S. Dong**, Z Gu, M Balle, B Zhang, C Li, L Ran. *A Novel Calibration-Free Motion Sensing Technique With Single-Channel Interferometric Radars*, in IEEE Transactions on Microwave Theory and Techniques, 2022.

[8] **S. Dong**, J Lu, Y Chen, C Gu, J Mao, et al. *Accurate Fast Heartrate Detection based on Fourier Bessel Series Expansion Technique During Radar-based Sleep Monitor*, in IEEE/MTT-S International Microwave Symposium **(IMS)**, 2023.

[9] **S. Dong**, Z Zhang, Y Li, J Lu, H Wu, C Gu, J Mao. *COVID-SENSE: Radar-Based Remote Respiratory Disorder Detection in Clinical Environment*, in IEEE MTT-S International Wireless Symposium **(IWS)**. 2023. **(FLASH Competition Best Paper Award)**

[10] **S. Dong**, L Wen, C Gu, J Mao. *Contactless Detection for Heart Sounds Based on Doppler Radar Sensor*, in IEEE MTT-S International Wireless Symposium **(IWS)**. 2022. **(FLASH Competition Best Paper Award)**

[11] **S. Dong**, C Gu, J Mao. *Contactless Cardiac RR Intervals Estimation in Radar-Based Cardiogram Detection*, in 56th Asilomar Conference on Signals, Systems, and Computers **(Asilomar)**. 2022. **(Finalist of Best Student Paper Competition)**

[12] **S. Dong**, C Gu, X Yang. *Contactless Cardiogram Reconstruction Based on the Wavelet Transform via Continuous-Wave Radar*, in Second CAAI International Conference **(CICAI)**. 2022. **(Best Demo Runner-up Award)**

[13] W. Li, **S. Dong**, Z Zhang, C Gu, J Mao. *Noninvasive continuous blood pressure monitoring based on wearable radar sensor with preliminary clinical validation*, in IEEE/MTT-S International Microwave Symposium **(IMS)**. 2022.

[14] **S. Dong**, C Gu, L Ran, JF Mao. *Doppler cardiogram detection in the presence of respiration with a K-band radar sensor*, in IEEE Radio and Wireless Symposium **(RWS)**. 2022. **(Finalist of Best Student Paper Competition)**

[15] **S. Dong**, Y Zhang, C Ma, Q Lv, C Li, L Ran. *Cardiogram detection with a millimeter-wave radar sensor*, in IEEE Radio and Wireless Symposium **(RWS)**. 2020.