SHUQIN DONG

Shanghai Jiao Tong University, China

✉ shuqindong@sjtu.edu.cn – 📞 +(86) 18069867587 – G Google Scholar – e Homepage

RESEARCH INTERESTS

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

EDUCATION

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

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   in SJTU and ZJU   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   in SJTU   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   in SJTU   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.

Audio defect detection   in HUAWEI   2020 - 2021

- Software algorithm engineer in 2012 Lab.
- Develop audio defect detection algorithms and install it into automated mobile terminal production equipment to detect defective products.

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 2023 FLASH Competition Best Paper Award	2023, IEEE MTT-S
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

- **Speaker** for IMS2023 workshop – Biomedical Radars for Monitoring and Diagnosis of Respiratory and Cardiovascular Diseases
- **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.

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] **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. 📄

[8] **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**) 📄

[9] **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**) 📄

[10] **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**) 📄

[11] **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**) 📄

[12] 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. 📄

[13] **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**) 📄

[14] **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. 📄

SKILLS

- **Tools:** Matlab(★★★), Python(★★☆), C++(★★☆), Cadence(★★☆), HFSS(★★☆), Altium designer(★★☆).