**Objective**
- Enable ubiquitous millimeter-wave device to perform at-home spirometry.

**Motivation**
- Daily in-clinic test is impractical and existing portable systems are expensive, inaccurate, and require extra-hardware.

**Challenges**
- When user exhales in-front of the 5G mobile device phase change should only be from airflow vibrations.
- Predicting lung function from vibration signal is complicated.

**CNN-LSTM to Predict Lung Function Indicators**

**Predicting lung function indicators and flow-volume graph**
- CNN-LSTM learns the representative features in the vibration signal by extracting local features between timesteps using CNN.
- LSTM captures the temporal global features and interdependencies between timesteps.

**Results and Conclusion**

**How to accurately estimate vibration signal from airflow?**
- Distinct vibratory signature on reflected signal when airflow strikes radar.
- Beamforming steers the signal towards an optimal location using 4 receive antennas.
- Reflector tracking algorithm ensures phase tracking from the strongest reflector.

**Conclusion**
- SpiroMilli can predict indicators and flow-volume graph.
- SpiroMilli can estimate vibration signal accurately to map it with lung function.

**Future works:**
- Mouth-to-Device Distance Calibration.
- Evaluate on different human and environment conditions and perform clinical trials.