TxACE Symposium Presentation

Wireless gesture recognition lies at the forefront of human-computer interaction. Radar imaging resolves the shortcomings of current platforms by providing doppler depth information and non-line of sight scanning. We are developing a real-time, radar-based gesture recognition platform using machine learning models and TI mmWave radar hardware operating at 77-81GHz. Using data enhancement techniques such as Singular Value Decomposition and Principal Component Analysis to reduce convergence times, machine learning models such as Support Vector Machines, Decision Trees etc. predict the gestures with accuracies around 75%. The validation of these models lies in capturing the correlation between the collected radar data and specific hand gestures. The success of this real-time platform for data collection, preprocessing, and classification demonstrates the feasibility of radar hardware and machine learning models for real-time static gesture recognition.