

## **Speed recognition based on ground vehicle in passive forward scattering radar**

### **ABSTRACT**

The merging of noise reduction and reshaped of the signal in time domain is headed to newfangled clustering methods. After a deep investigation on pre-processing the detection of ground vehicle using passive forward scattering radar (PFSR), principal component analysis (PCA) could be used as spectral signature for target's speed recognition. The clustering-based PCA able to distinguish the target's rapidity from the passive forward scattering radar receiver. A small five door hatchback vehicle is used for detection as ground vehicle with several speed and various distance from the passive forward scattering radar receiver. The distance give impact to the clustering-based PCA which is closer vehicle to the passive forward scattering radar offers finer variance of training data in speed recognition.

**Keyword:** PSFR; PCA; Forward scatter; Speed recognition