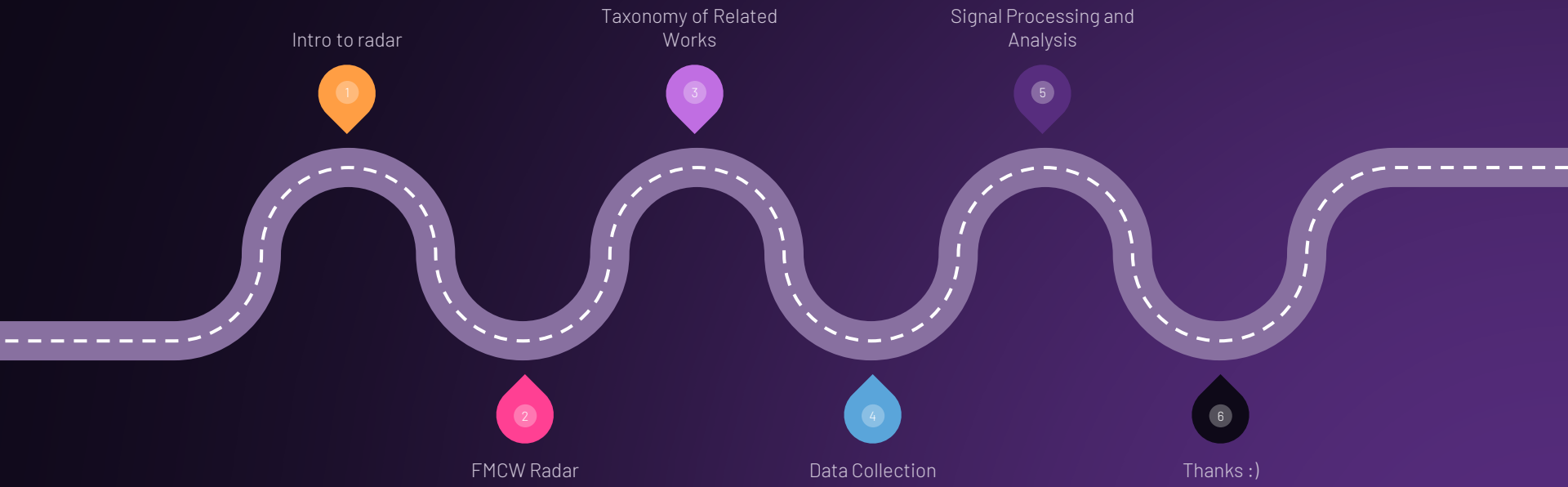
AN EXPLORATORY STUDY OF MMWAVE RADAR FOR OBJECT DETECTION AND CLASSIFICATION

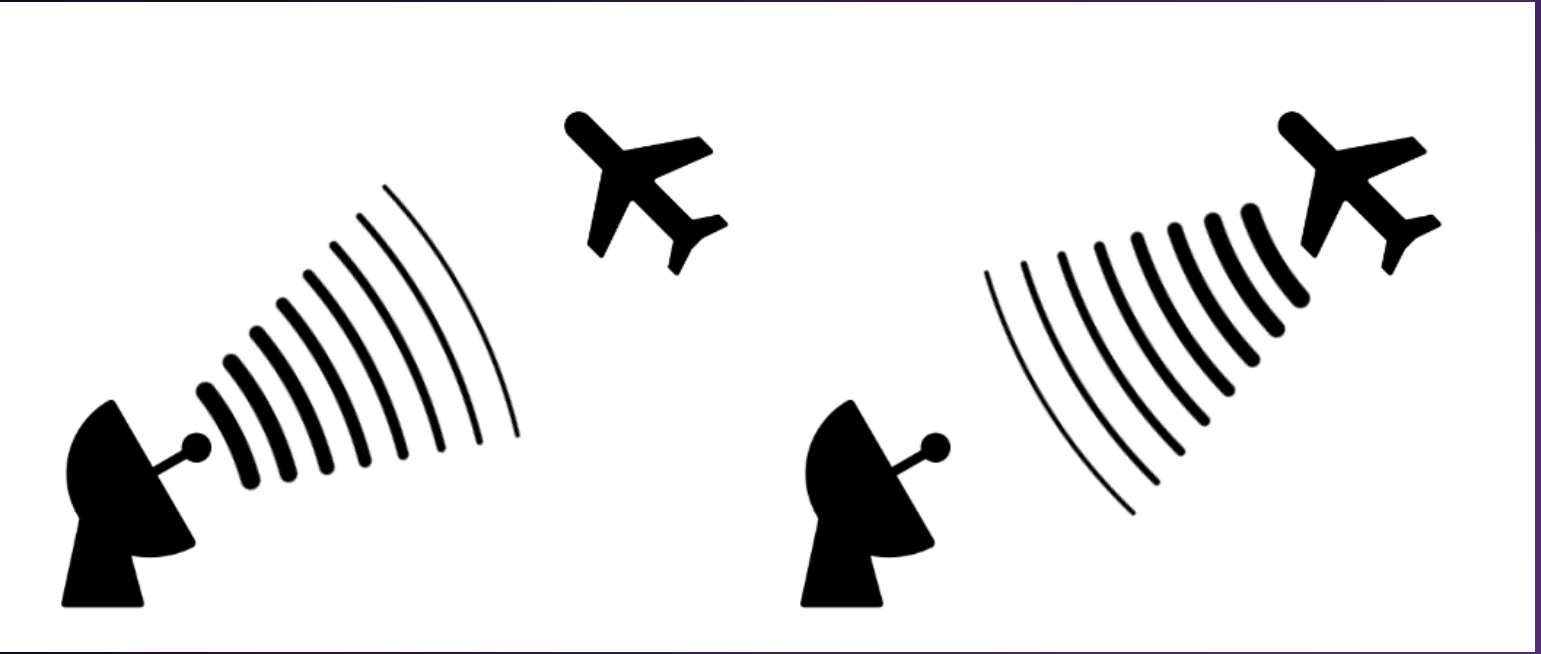
Problem Statement

★ How can the unique properties of mmWave radar be leveraged in object detection and recognition tasks?

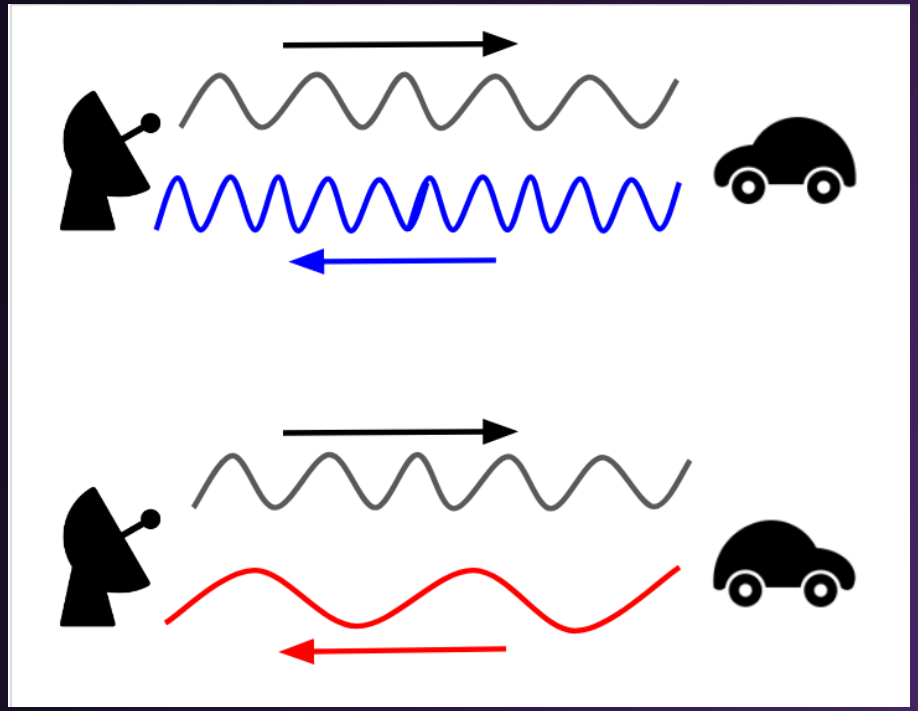
ROADMAP


Intro to radar
1
Taxonomy of Related Works
3
Signal Processing and Analysis
5
2
FMCW Radar
4
Data Collection
6
Thanks :)

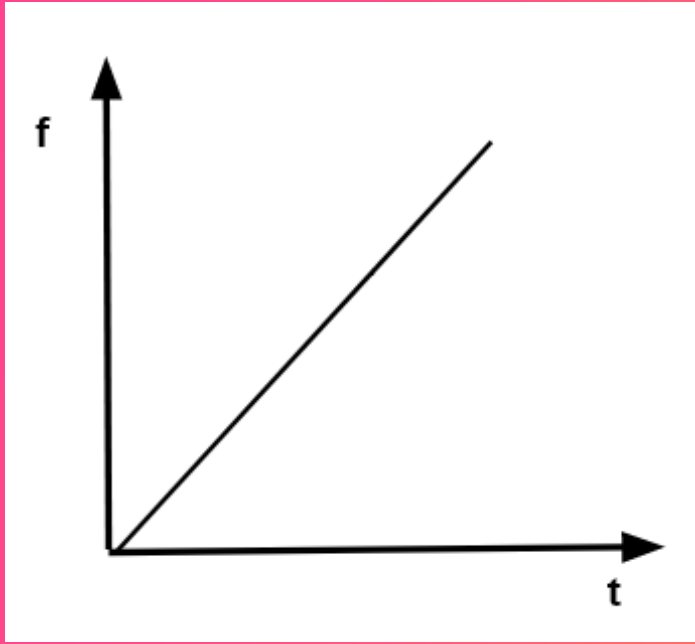
What is radar?

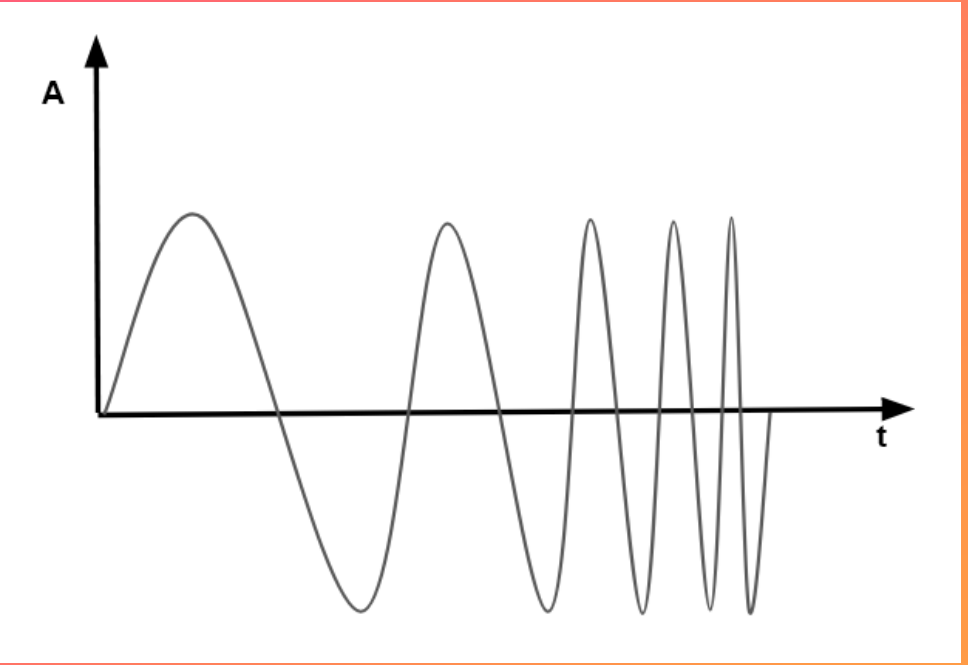


The Doppler Effect

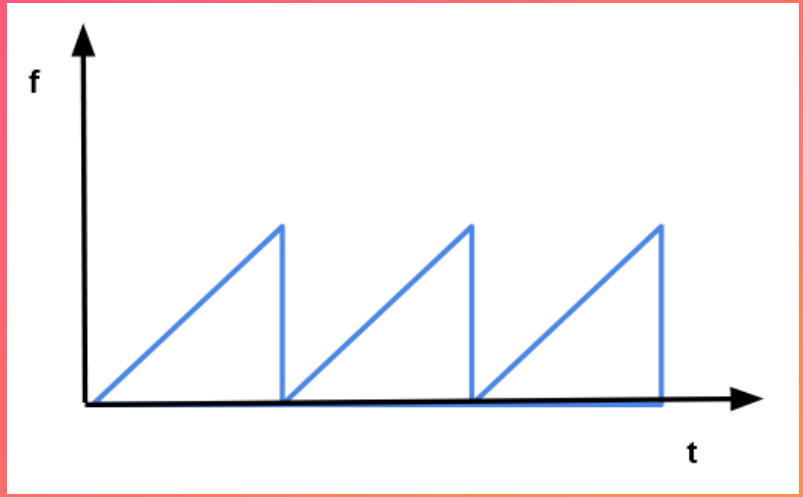


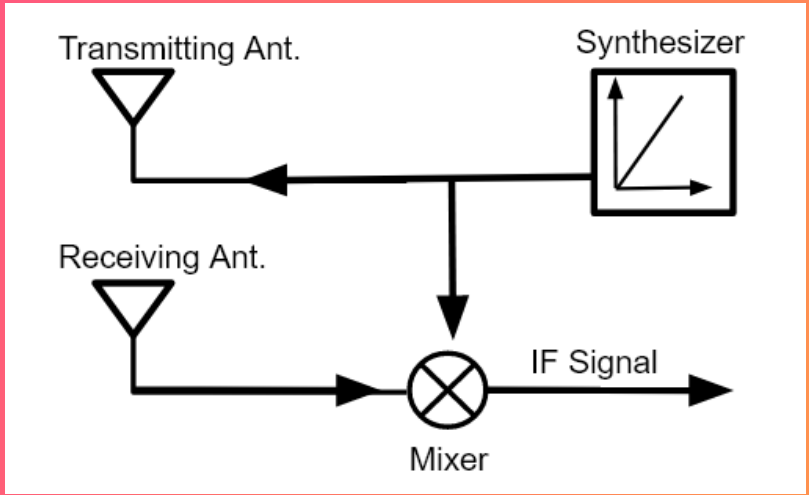
Frequency Modulated Continuous Wave Radar





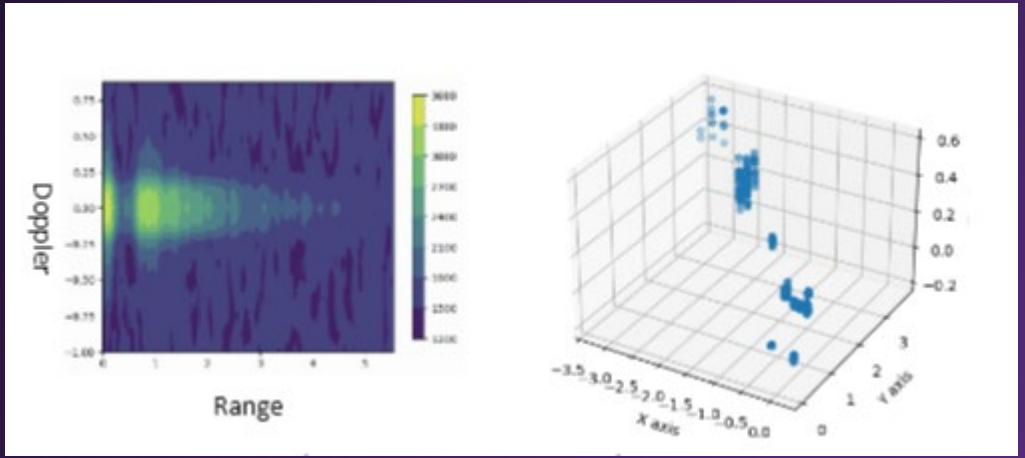
Frequency Modulated Continuous Wave Radar





Taxonomy of Related Works

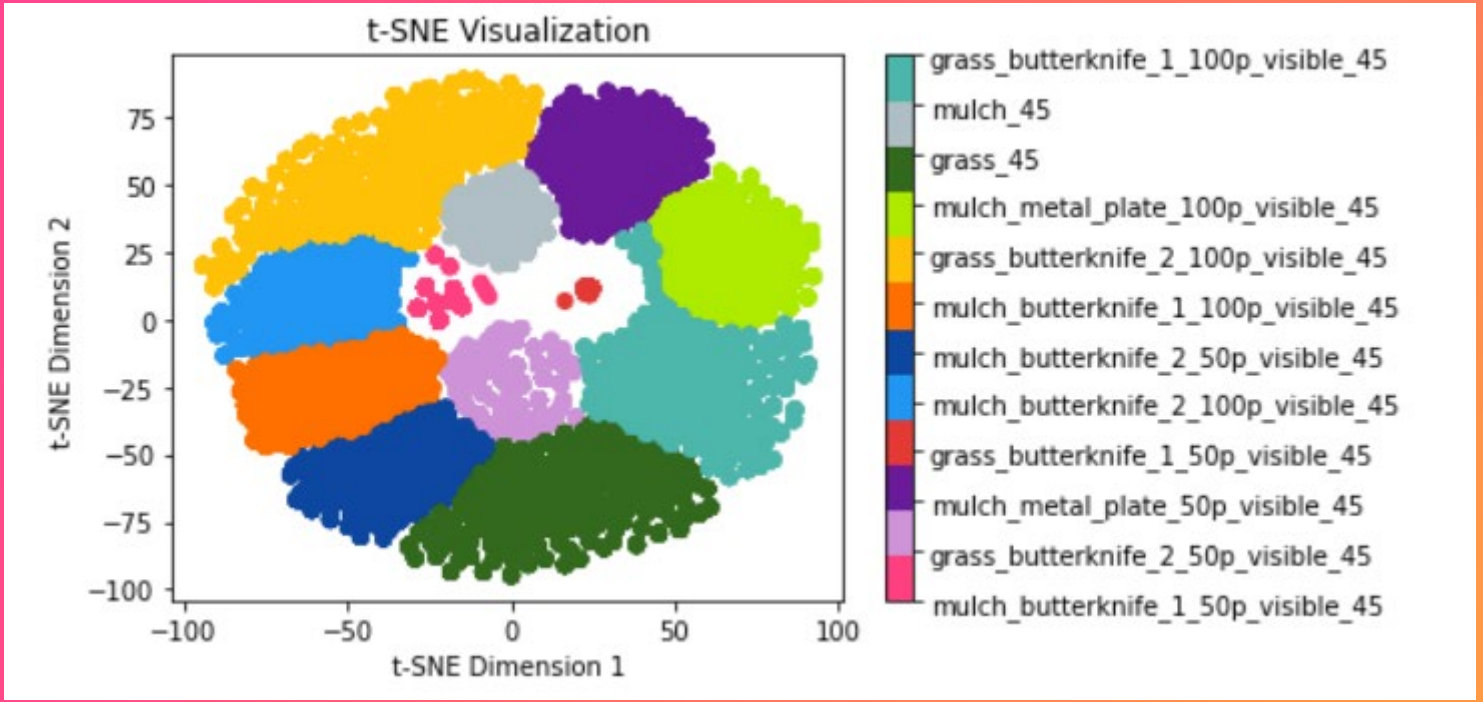
- ★ Range-Doppler
- ★ 3D point cloud
- ★ Micro-Doppler



Data Collection!

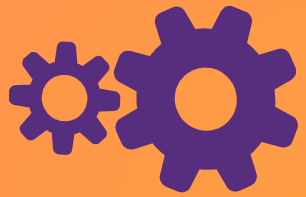
Data Collection!

Processing and Analysis



Skills and Research Experience

- ★ Radar and FMCW radar principles
- ★ Hardware setup
  - AWR2944, IWR6843, DCA1000 + IWR1843, SSH
- ★ Reading and summarizing technical documentation and research articles
- ★ Creation of articles using overleaf
  - LaTeX editing, figure creation, equation
- ★ Data analysis
  - Basic principles of DSP and Fourier Transforms, base principles of ML
- ★ Data collection
  - Consistent measurement taking, comparability of data, resourcefulness



Thank You!