

SCR: Combined Sensing & Communications

Project Authors Name: Vedran Beganovic

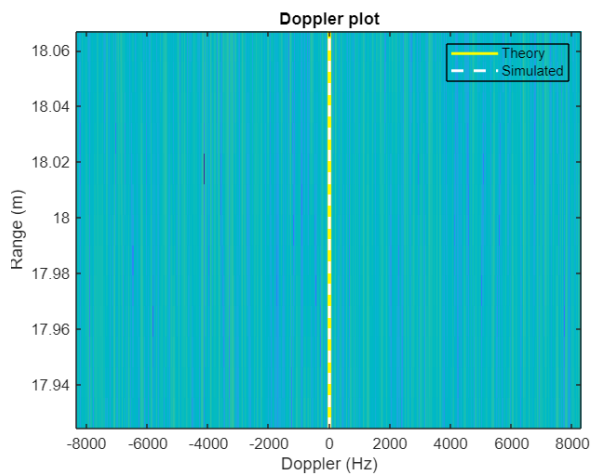
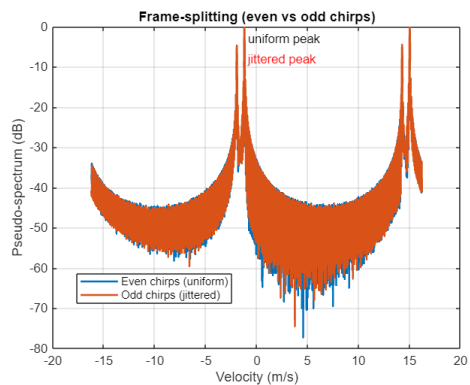
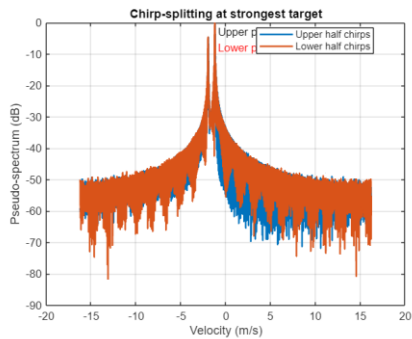
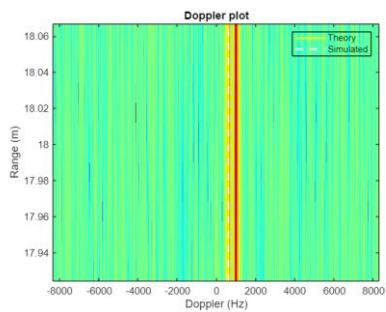
Project Evaluator Name: Gabriela Crother-Collado, Aidan Rosenblatt

- Guidelines to review the report for Question 1-3 below:
<https://dl.acm.org/journal/dgov/reviewer-guidelines>
- Guidelines to review the code artifacts for Question 4-8 below:
<https://conferences.sigcomm.org/sigcomm/2022/cf-artifacts.html>

Field Code Changed

1. Summary

This project is a deep dive into spoofing attacks on automotive mmWave FMCW radar and examines a spoofing-resilient, communication-integrated radar (SCR) approach to detect deceptive targets. They use chirp-splitting and frame-splitting, and it uses the fact that real targets exhibit Doppler shifts that scale with carrier frequency, while spoofed reflections do not. MATLAB-based simulations show that spoofers cause misaligned Doppler peaks, enabling detection through peak-shift and magnitude metrics without requiring additional hardware.



2. Strengths

Provide strengths or positive aspects of the project.

The project shows technical prowess in the subject area and solves/contributes to a real world problem.

3. Weakness

Provide any weakness or aspects that can be further improved.

It would have been nice to see more quantitative results/analysis of the splitting and other effects rather than just qualitative via the plots.

4. Documentation: Is the artifact/code sufficiently documented?

Rate from 0% to 100%, where 0% means "documentation is completely insufficient" and 100% means "documentation is absolutely sufficient". If you need to assess both a dataset and tools, please take the average and comment below. In assessing tools, please consider if they are easy or difficult to install/set up and get to run. In assessing datasets, please consider if the meta data is sufficient.

Choices are:

- 1. 0%
- 2. 20%
- 3. 40%
- 4. 60%
- 5. 80%
- 6. 100%

Documentation: Comment on/explain your choice above:

Code was uploaded late to Github, could have expanded more on the necessary toolboxes

5. Completeness: Do the submitted artifacts/code include all of the key components described in the report?

Rate from 0% to 100%, where 0% means "does not include any key components" and 100% means "includes all key components".

Choices are:

- 1. 0%
- 2. 20%
- 3. 40%
- 4. 60%
- 5. 80%
- 6. 100%

Completeness: Comment on/explain your choice above

Contains all figures and results from presentation

6. Exercisability: Do the submitted artifacts/code include the scripts and data needed to run the experiments described in the paper, and can the software be successfully executed?

Rate from 0% to 100%, where 0% means "the scripts/software cannot be successfully executed and/or no data is included" and 100% means "the artifact includes all necessary scripts/software and data, and scripts/software (if present) can be successfully executed".

Choices are:

- 1. 0%
- 2. 20%
- 3. 40%
- 4. 60%
- 5. 80%
- 6. 100%

Exercisability: Comment on/explain your choice above

Software can be executed successfully

7. Results attainable: Does the artifact/code make it possible, with reasonable effort, to obtain the key results from the artifact/code?

Rate from 0% to 100%, where 0% means "no results can be obtained" and 100% means "all results can be obtained".

Choices are:

- 1. 0%
- 2. 20%
- 3. 40%
- 4. 60%
- 5. 80%
- 6. 100%

Results attainable: Comment on/explain your choice above

The code was very simple and easy to use and obtain results

8. Results completeness: How many key results of the paper/report is the provided code meant to support?

Rate from 0% to 100%, where 0% means "the artifact is meant to support no key results" and 100% means "the artifact is meant to support all key results".

Choices are:

- 1. 0%
- 2. 20%
- 3. 40%
- 4. 60%
- 5. 80%
- 6. 100%

Results completeness: Comment on/explain your choice above

Code supports all results

Reviewer Team member1 Name
Gabriela Crother-Collado

Reviewer Team member2 Name
Aidan Rosenblatt