A Recreation of Through Fog High Resolution Imaging Using Millimeter Wave Radar

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- 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

Provide a brief summary of the project in your own words.

This project recreates the preprocessing and data synthesis pipeline from “Through Fog High Resolution Imaging Using Millimeter Wave Radar.” The authors simulated the 3D point clouds and heatmaps from the original paper through the recreation of the preprocessing and data synthesis. The results from this recreated experiment nearly match the original paper with small differences due to different implementation methods.

2. Strengths

Provide strengths or positive aspects of the project.

- Strong technical understanding demonstrated through simulation implementation
- Validation of results through comparison with reference results
- Good organization in report with helpful figures

3. Weakness

Provide any weakness or aspects that can be further improved.

- No implementation of deep learning algorithm
- No physical hardware validation

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:

Strong documentation for the simulation code, ReadMe is sufficient in answering any questions about what I had to do.

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

The simulation code accurately demonstrates all components that were shown and described in the paper.

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

I was able to simulate the proper results with all code and software listed in the GitHub repo and ReadMe file.

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

I attained all results that the paper stated with little to no issues.

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

All the results in the paper can be done in the simulation and support the final results in the paper

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Reviewer 1: Farris Nefissi