Guided Up-sampling of Low-Resolution LWIR Images with Bilateral Filtering of Aligned RGB Images

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Motivation

- Pedestrian detection is crucial for the development of autonomous vehicles.
- Thermal channels are helpful in pedestrian detection under low light environments.
- Human bodies radiate in the thermal band, LWIR: long wavelength infrared (7.5 \sim 13\mu m).
- The 9.3 \mu m band is well suited for human detection.
- However, thermal imaging has resolution limitations due to the dimensions of the camera infrared focal plane and sensor accuracy.
- Use of infrared thermal images acquired from color-thermal datasets require image post-processing enhancement for improvement of feature extractions.

Reference