RangePerception: Taming LiDAR Range View for Efficient and Accurate 3D Object Detection

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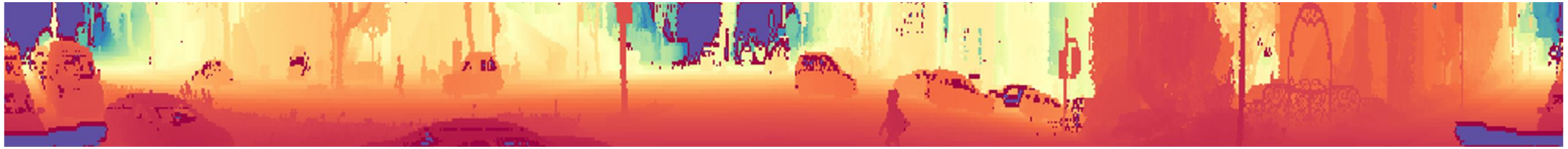
Introduction

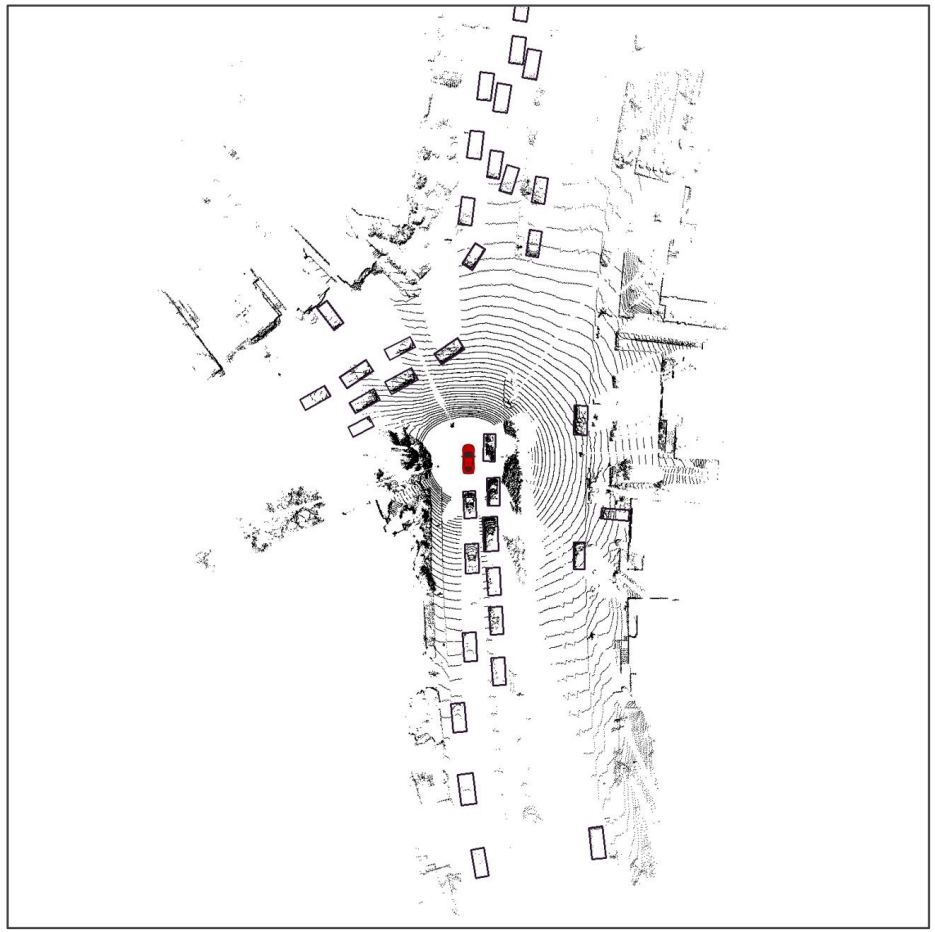


(a) Range of LiDAR points (RV)

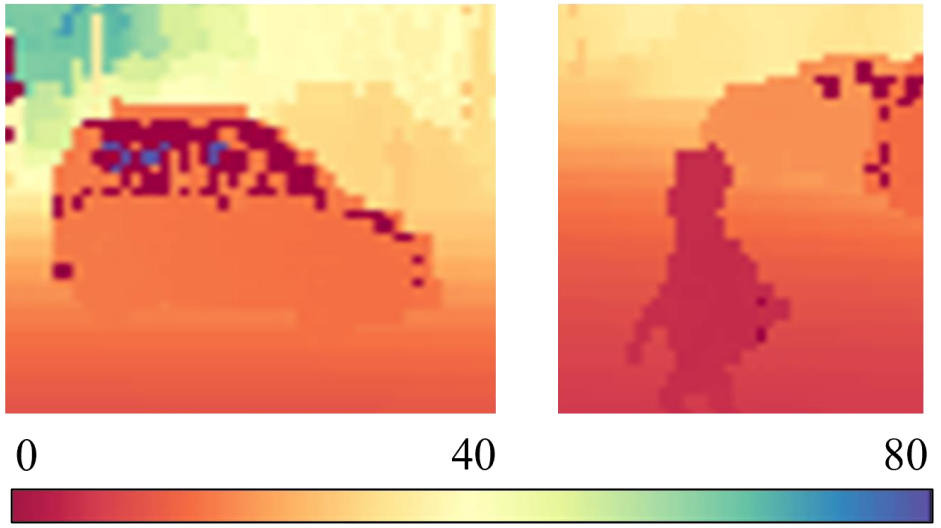
(b) Intensity of LiDAR points (RV)

(c) Foreground LiDAR points of Vehicles (RV)

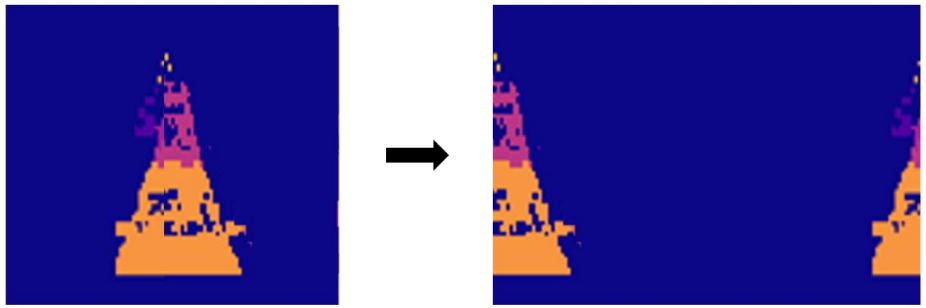
Introduction



(d) LiDAR points (BEV)

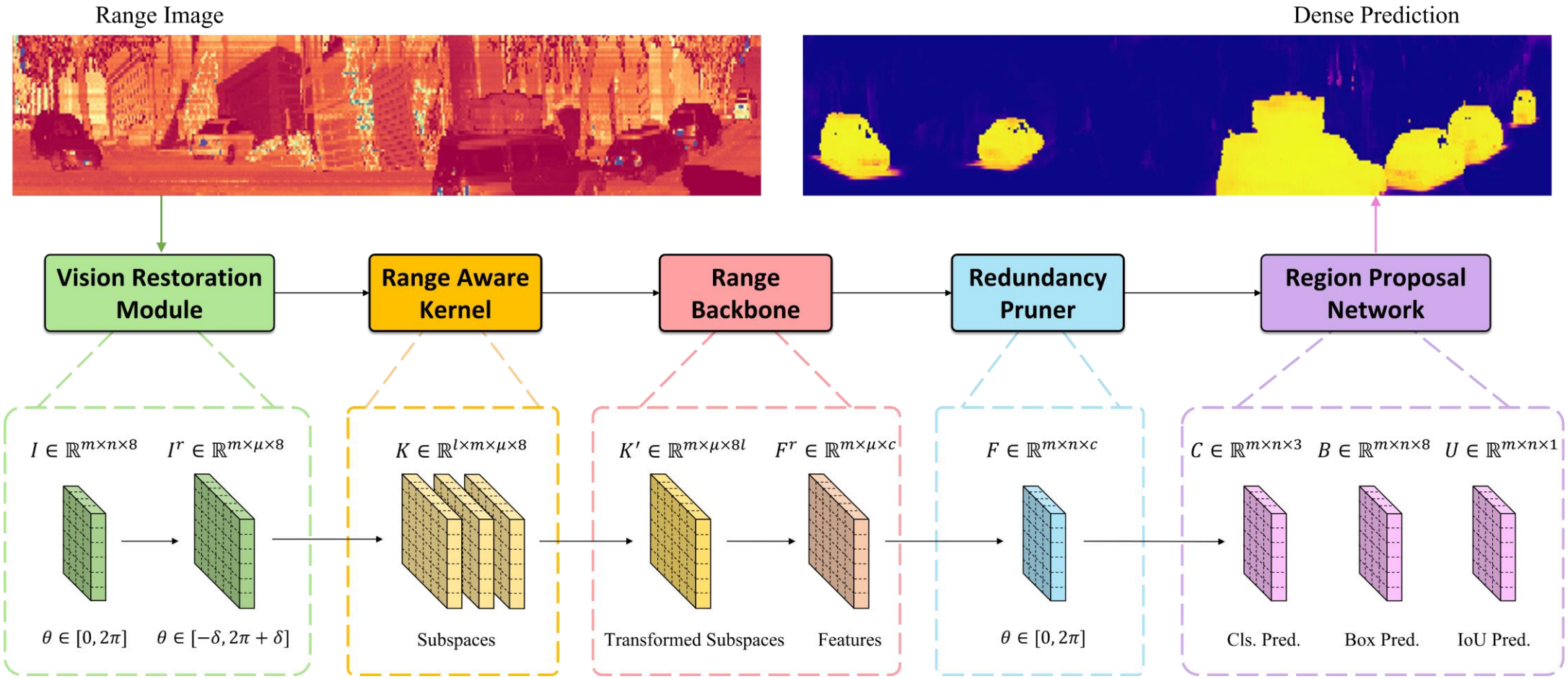


(e) Range distribution of foreground points (RV)

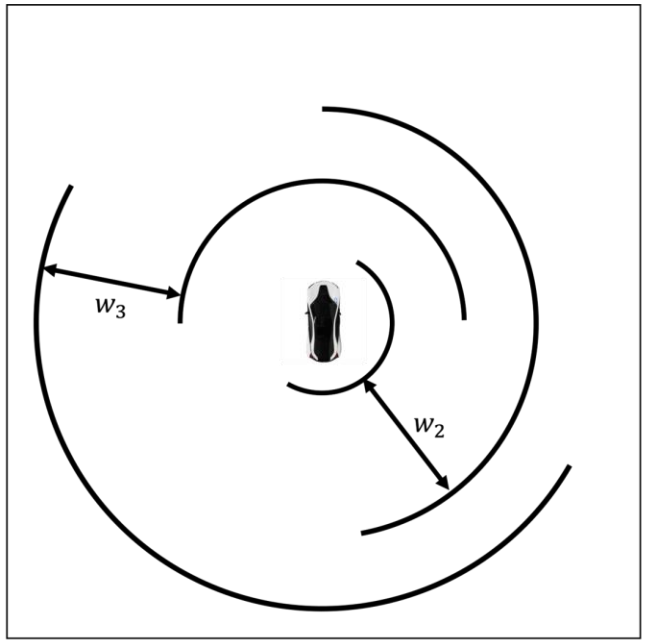


(f) Vision Corruption phenomena (RV)

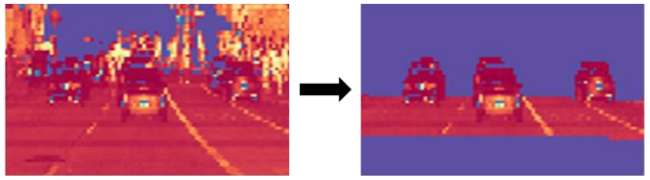
RangePerception



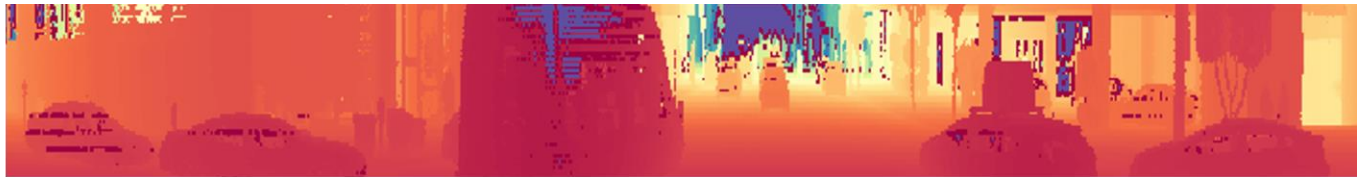
Range Aware Kernel



(a) Perception Windows for RAK



(b) Remedy for Spatial Misalignment



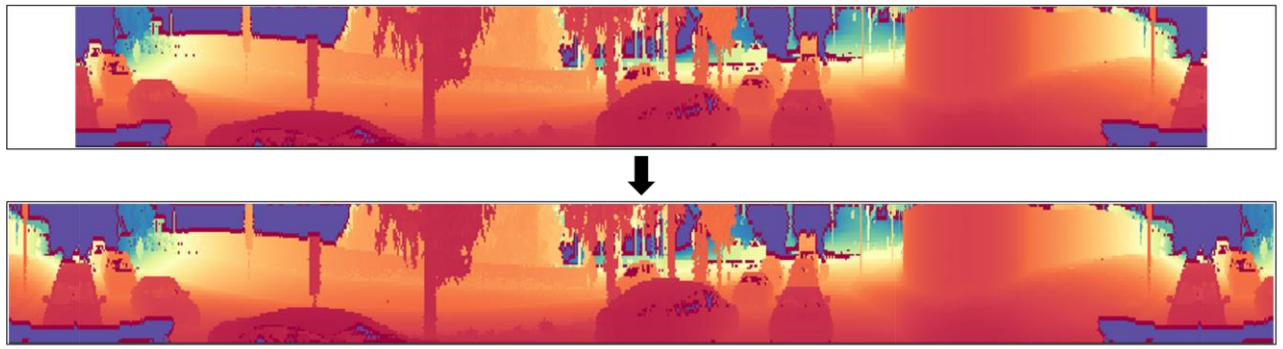
(c) Range of LiDAR points in range image I

(d) Intensity of LiDAR points in range image I

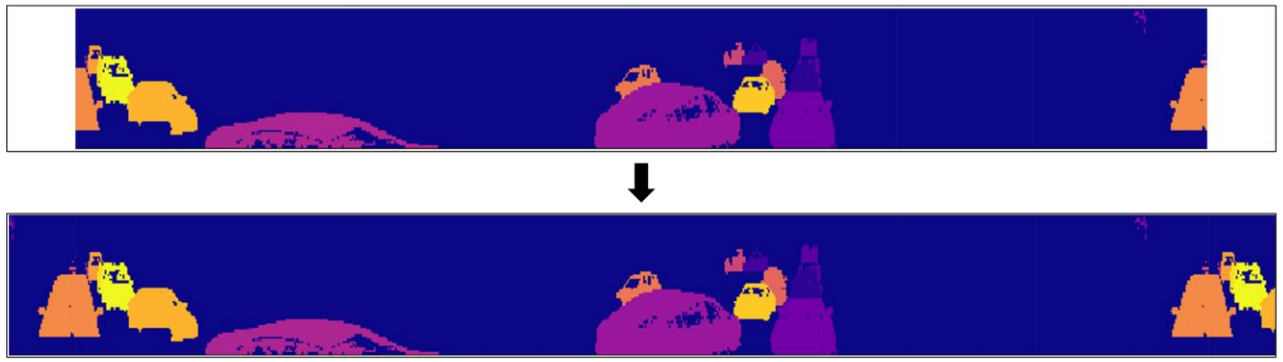
(e) Intensity of LiDAR points in subspace K_1

(f) Intensity of LiDAR points in subspace K_4

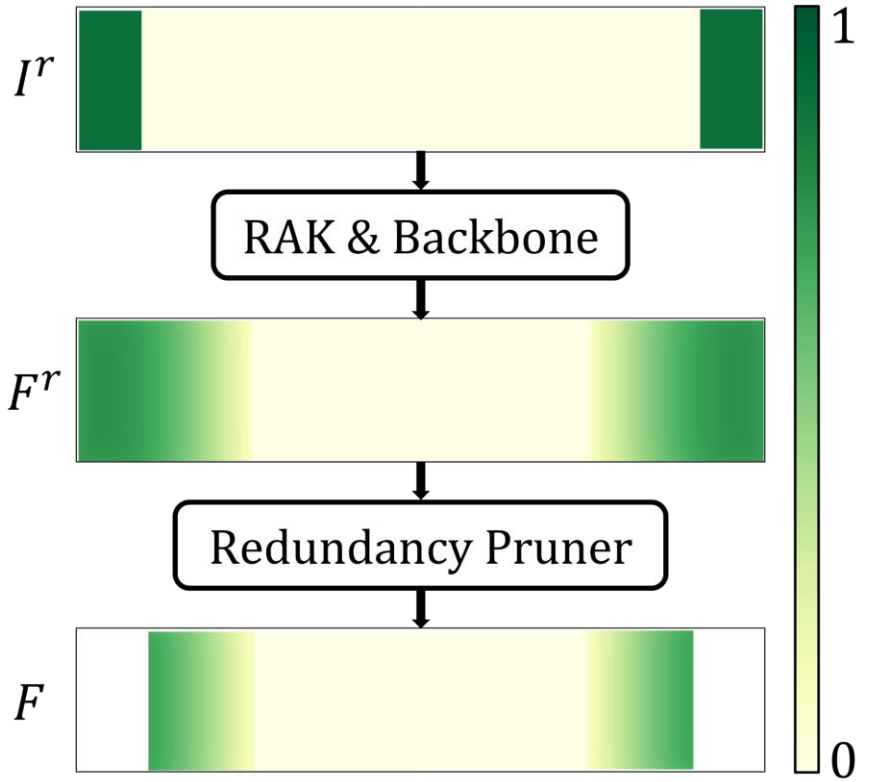
Vision Restoration Module



(a) Vision Restoration of range matrix



(b) Vision Restoration of foreground points



(c) Pseudo feature propagation