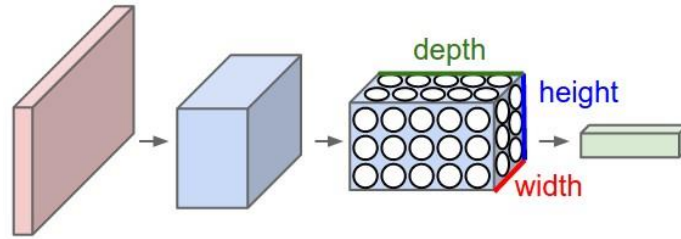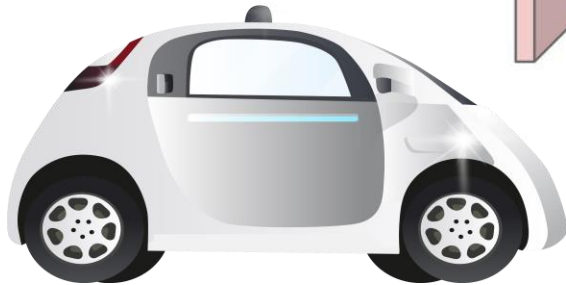# Dr. Qing Yang (Associate Professor)
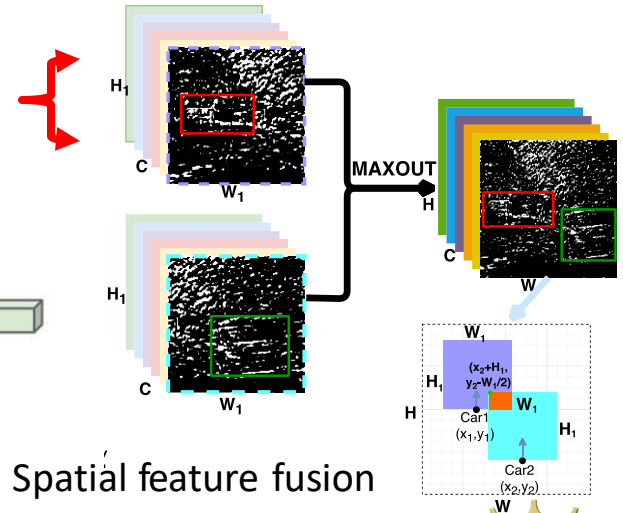
Department of Computer Science and Engineering

Cooperative perception, vehicular edge computing, deep learning on vehicles, trustworthy vehicular system, and privacy protection on connected and autonomous vehicles
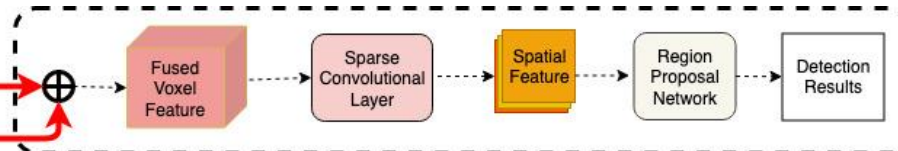
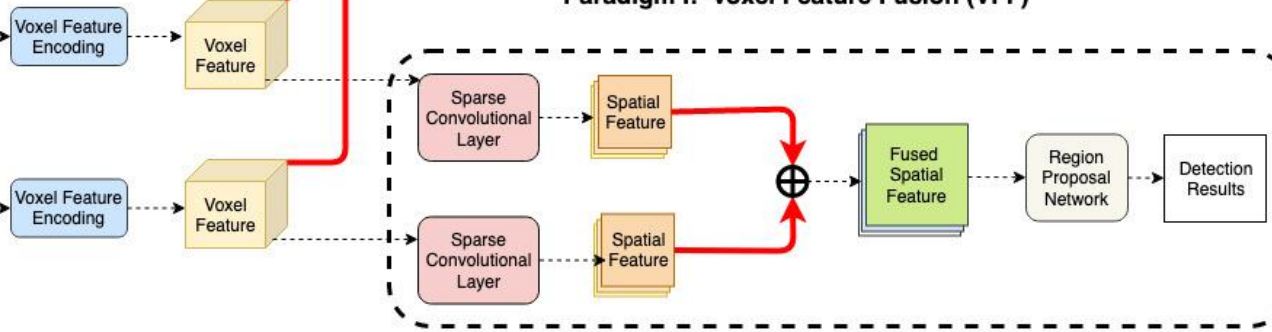LiDAR or HD Camera

Convolutional Neural Network (CNN)

depth

height

width

MAXOUT

H_1

C

W_1

H_1

C

W_1

H

C

W

Spatial feature fusion

W_1

$(x_2+H_1, y_2-W_1/2)$

H_1

W_1

Car1 (x_1,y_1)

H

W_1

H_1

Car2 (x_2,y_2)

W

LIDAR data from UAV 1

Voxel Feature Encoding

Voxel Feature

LIDAR data from UAV 2

Voxel Feature Encoding

Voxel Feature

⊕ Fused Voxel Feature → Sparse Convolutional Layer → Spatial Feature → Region Proposal Network → Detection Results

Paradigm I: Voxel Feature Fusion (VFF)

Sparse Convolutional Layer → Spatial Feature

Sparse Convolutional Layer → Spatial Feature

⊕ → Fused Spatial Feature → Region Proposal Network → Detection Results

Paradigm II: Spatial Feature Fusion (SFF)

Sponsors