

# 360° Threat Analysis Using Cameras



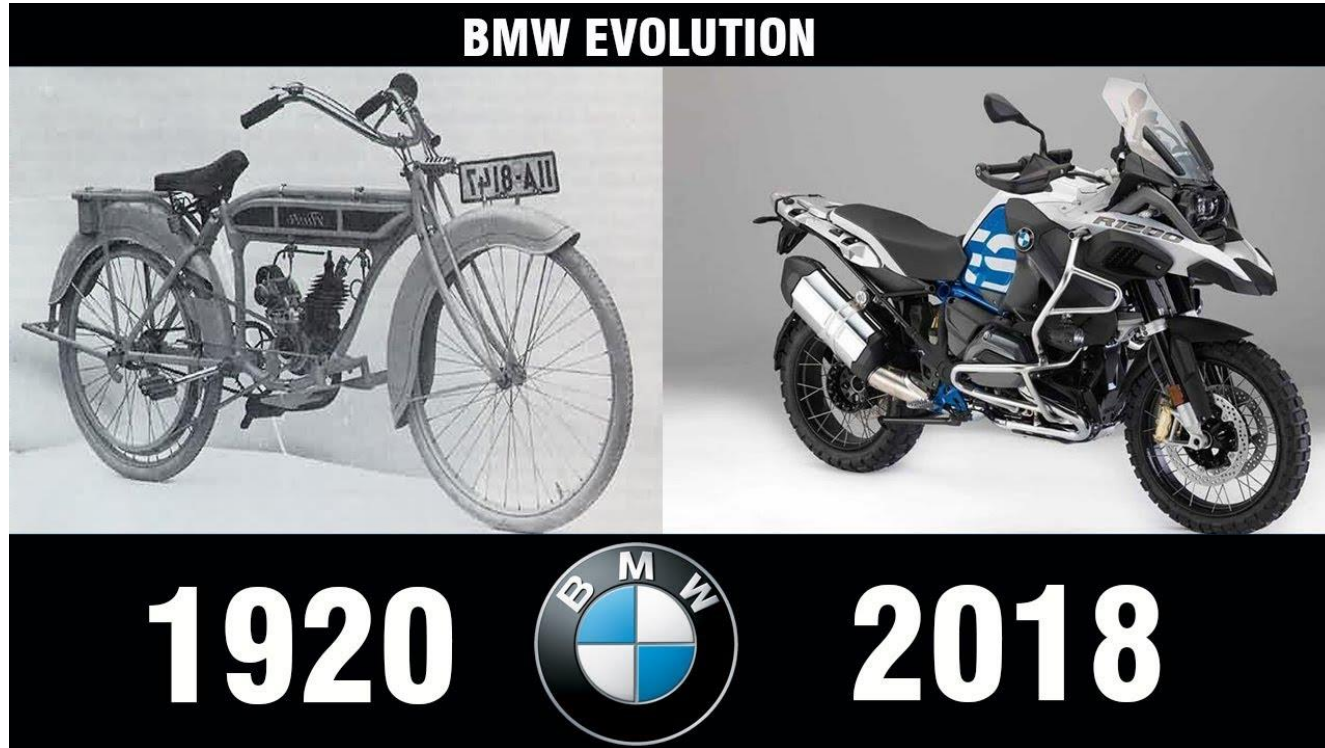
***RIDEVISION***

lior.cohen@ride.vision

Riding ...



# Primitive Vehicle



# Terrible Statistics

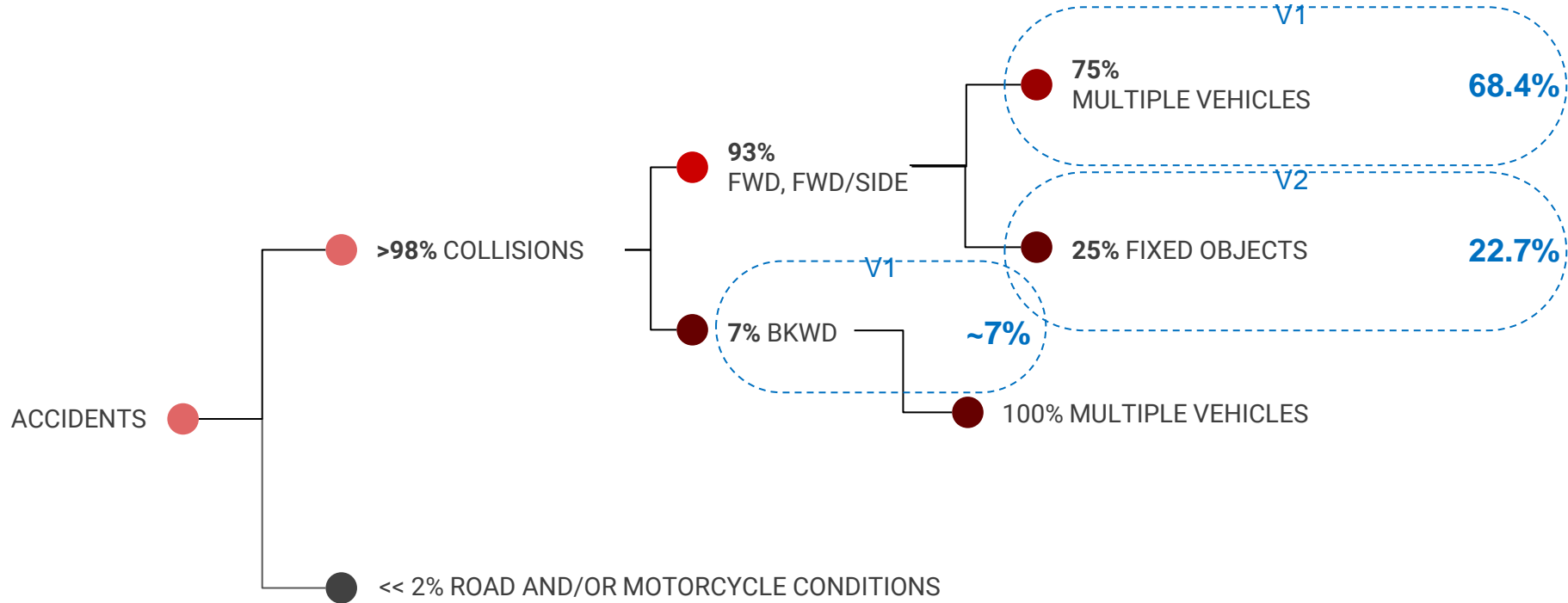
MOTORCYCLISTS HAVE

**x27** CHANCES TO **DIE**

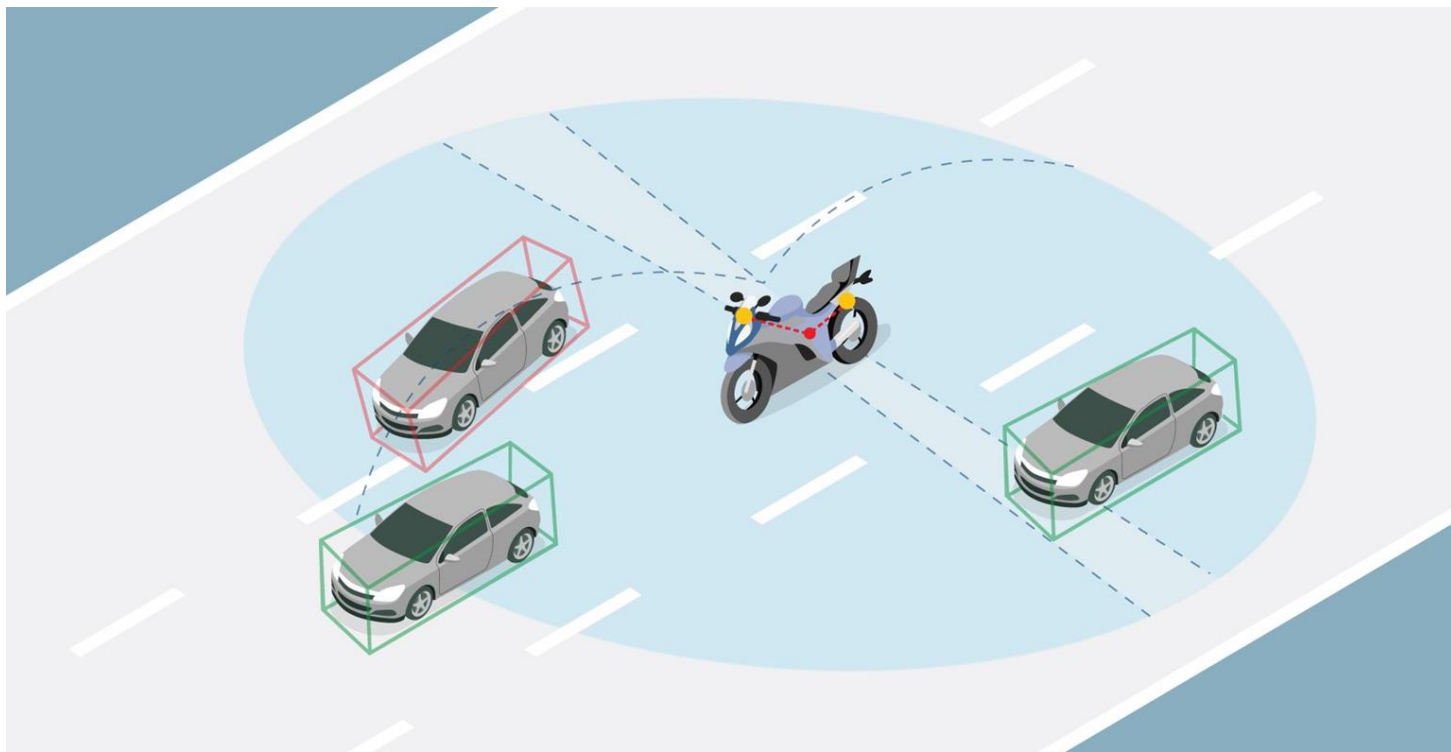
**x6** CHANCES TO **INJURY**

IN ACCIDENTS THAN A CAR OCCUPANT

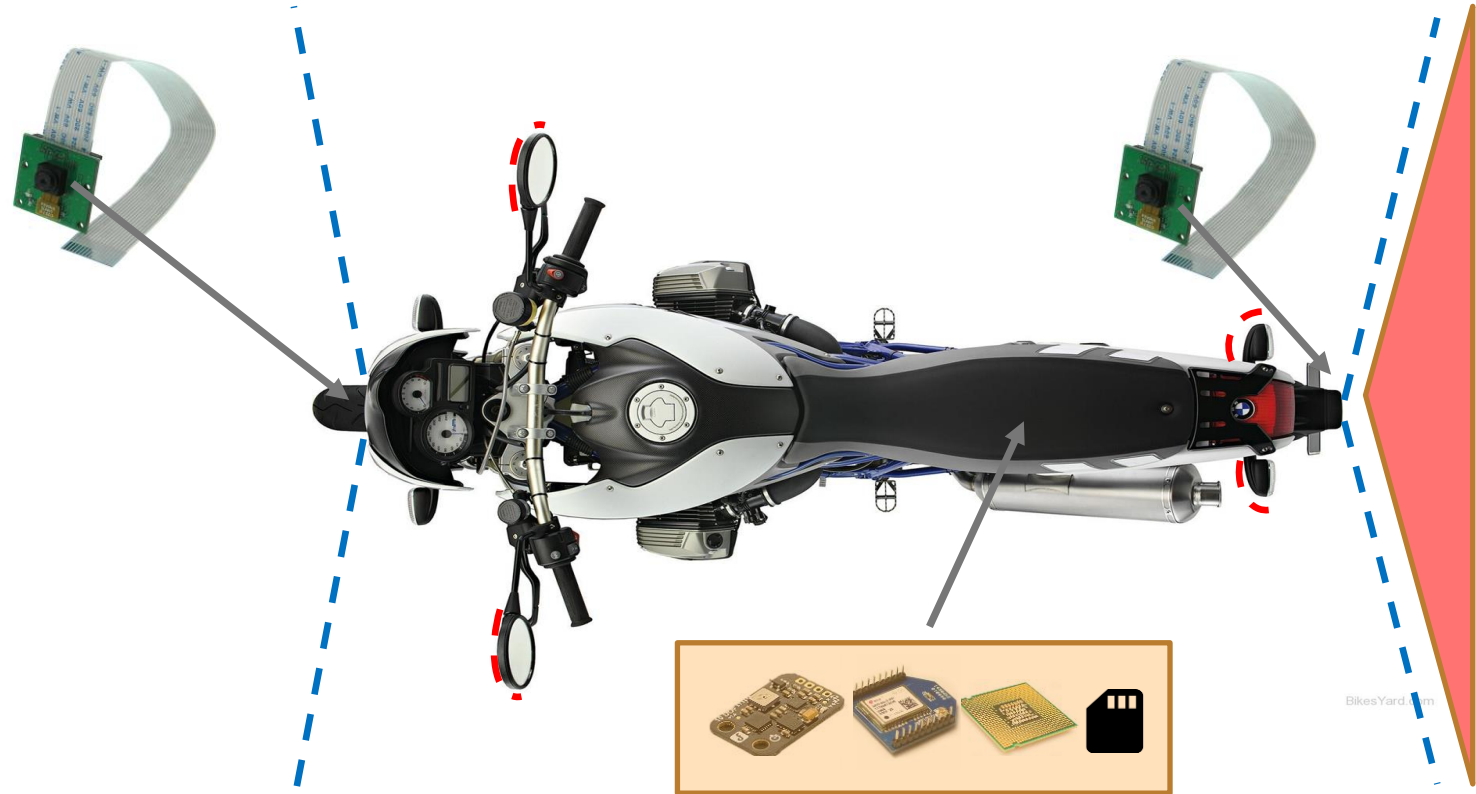
# Terrible Statistics



# RIDEVISION - 1.5 Sec Can Make the Difference

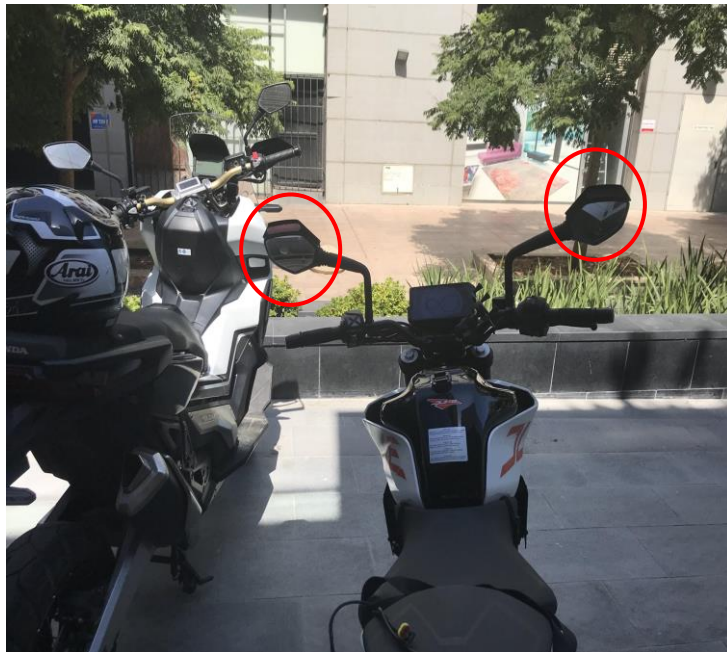


# RIDEVISION - 1.5 Sec Can Make the Difference



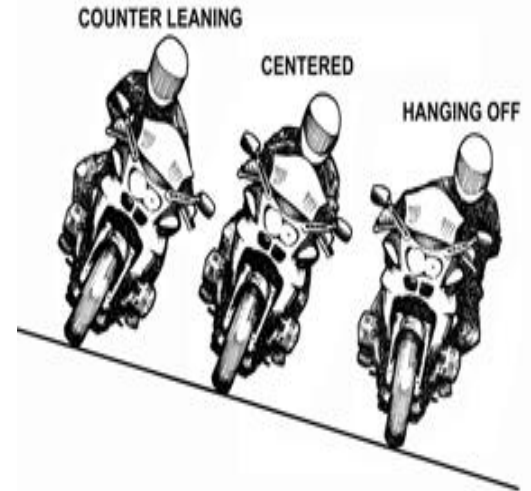
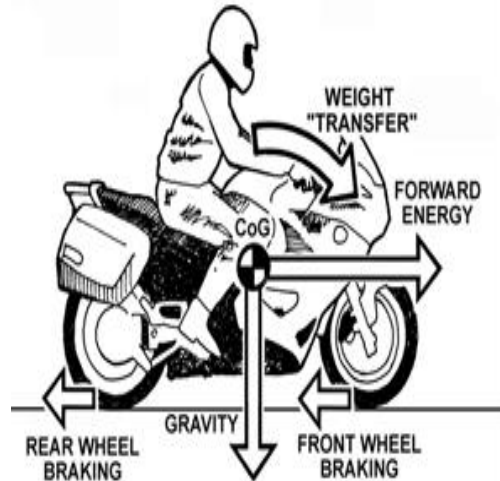


# RIDEVISION - 1.5 Sec Can Make the Difference





# Challenges - Maneuvers



# Challenges - Real Estate



# Challenges - Cost

1K\$ - 5K\$

low-mid range

5K\$ - 20K\$

high end

# Challenges - Rider Interaction



# Technology - Latency vs Accuracy



# Technology - Detection and Tracking

## Detection

- Macro and Micro detection

## Tracking

- To gap missing detections

- To smooth the area of interest

- To save processing

- Fusion with IMU



# Technology - Threat Assessment

TOC - using several cues

- Optical flow

- Distance estimation fused with IMU data

- Feature clusters tracking and scale changes

- Detections scale change

- ...

# Technology - How to Measure the System Accuracy?

Riding, Riding, Riding

Using reference sensor - Lidar/Radar/Stereo cameras

User feedback in real time

Simulation

Hard to find for motorcycles

GTAV

25, 241

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t: 0

566, 395



Q & A