# SIMULATION-BASED TRAINING PROGRAMS

**Winter School Hackathon - Team 2**
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# ACCIDENTS

**Human Involvement** **95% Partly** **65% Fully**

Sabey and Taylor - 1980

**33 lives loss per day**

FARS - 2021

**2000 cyclists deaths per year**

Statistica - 2020

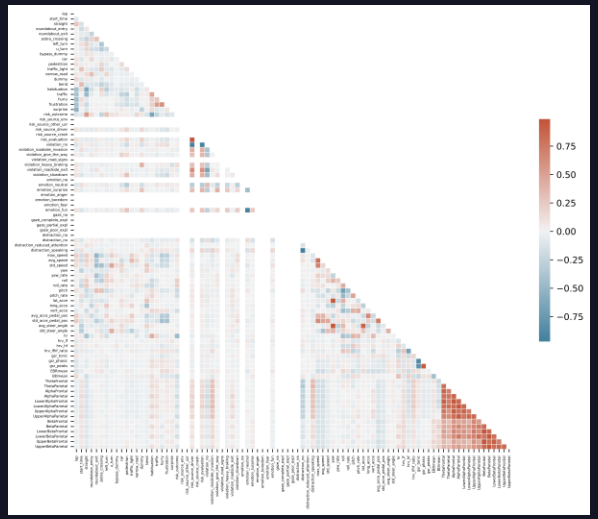
*" **DRIVESAFE** - Harnessing SimuSafe Data to Predict Driving Violations and Transform Simulation-Based Training Program"*

# Data Pre-preprocessing

**Data Scaling:**
- Min-max Scaling
- Standard Scaling

**Main focus on**
- Vehicular data
- Neurophysical data

Drop of missing values

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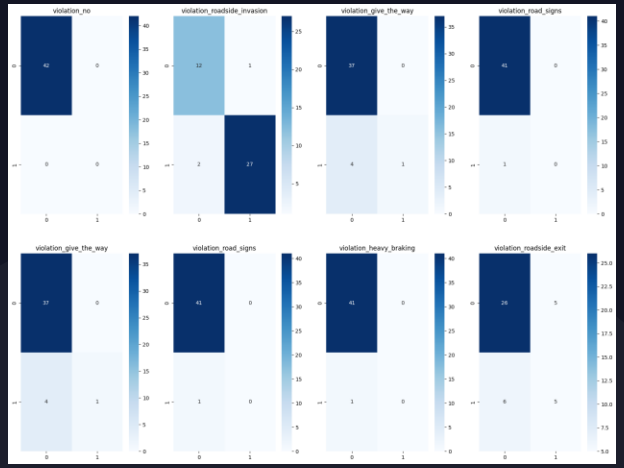
# Predicting Violations

- Roadside invasion
- Give the way
- Road signs
- Heavy braking
- Roadside Exit
- Slowdown

64%




# IMPACT

Enhanced Road Safety

Cost Savings

Targeted Training Programs

Transform Driving Behavior

Save Human Lives

# Bonus – from Driving Behavior to Personality Analysis

1. Employ one-hot encoding for data preprocessing and handle missing values.

2. Establish the most challenging lap (lap 7) as the reference point for categorizing individuals into three distinct groups.

3. Conduct separate clustering analyses on Vehicular Data and Neurophysiological Data.

4. As part of additional exploration, infer individual driving behaviors under similar road conditions through the identified clusters. This, in turn, aids in comprehending personality traits or cross-validating personality assessments with other testing data.