**Multimodal Driver Drowsiness Detection System**

**Background:**

Drowsy driving is a significant contributor to road accidents, causing thousands of fatalities each year. Traditional detection methods, such as monitoring eye closure or steering patterns, are often unreliable due to variations in lighting, occlusions, and individual driving behaviors. To improve accuracy and real-time detection, a **multimodal approach** that integrates multiple data sources is required.

**Challenge:**

Your task is to **develop a smart driver drowsiness detection system** that combines **visual, physiological, and behavioral inputs** to accurately detect signs of drowsiness in real time. The system should utilize:

* **Face and eye tracking** (via webcam) to detect eye closure and yawning.
* **Steering behavior analysis** to monitor sudden lane deviations.
* **Heart rate monitoring (simulated or real sensor data)** for physiological fatigue detection.

**Expected Deliverables:**

**Multimodal Data Processing Model** – A model that effectively integrates and processes data from multiple sources.

**Real-Time Drowsiness Detection** – A system capable of identifying drowsiness with minimal delay.

**User-Friendly Interface** – A dashboard or mobile app that alerts drivers in case of detected drowsiness.

**Adaptive Learning (Bonus Challenge)** – A feature that personalizes drowsiness detection based on individual driving patterns.

Submit Your solution in terms of model and documentation by 16-2-25 at [Surabhi.purwar@iilm.edu](mailto:Surabhi.purwar@iilm.edu).