Technical Report

Problem Statement:

- Develop a reliable, multimodal stroke detection platform that combines facial recognition and medical history data to accurately assess stroke risk in real time. The platform should detect potential stroke symptoms through a camera-based model while considering personal medical history, offering an immediate probability of stroke occurrence.
- Additionally, it aims to provide rapid assistance by connecting users with nearby emergency rooms, featuring a chatbot that guides users in case of emergencies. The ultimate goal is to create an accessible, user-centered tool that supports timely stroke detection and emergency response, potentially improving patient outcomes and public health.

Objective:

- The objective of this project is to create an accessible, multimodal stroke detection platform that accurately identifies stroke risk by combining facial recognition with medical history data.
- This platform aims to provide users with a real-time stroke probability assessment and immediate emergency assistance options.
- Through an intuitive interface and built-in chatbot guidance, the system will connect users to nearby emergency facilities and facilitate rapid response actions, ultimately aiming to improve early stroke detection and intervention, enhance user safety, and support healthcare response efficiency.

Technical Improvement:

- By combining facial recognition with medical history data, the platform leverages complementary sources of information to enhance accuracy and reliability in stroke risk assessment. The facial recognition model (ResNet50) and medical history model (RandomForest) each contribute unique insights, and their weighted combination (60%

facial, 40% medical history) offers a more holistic view of stroke indicators, reducing the likelihood of false positives or missed detections.

- Additionally, the introduction of an emergency switch provides a critical user-centered feature: when the platform detects a high stroke probability, users can quickly trigger an emergency response, connecting them to nearby ERs or alerting emergency services.

Hack-A-Roo features:

- We are trying to put every piece together and make sure the platform is working correctly.