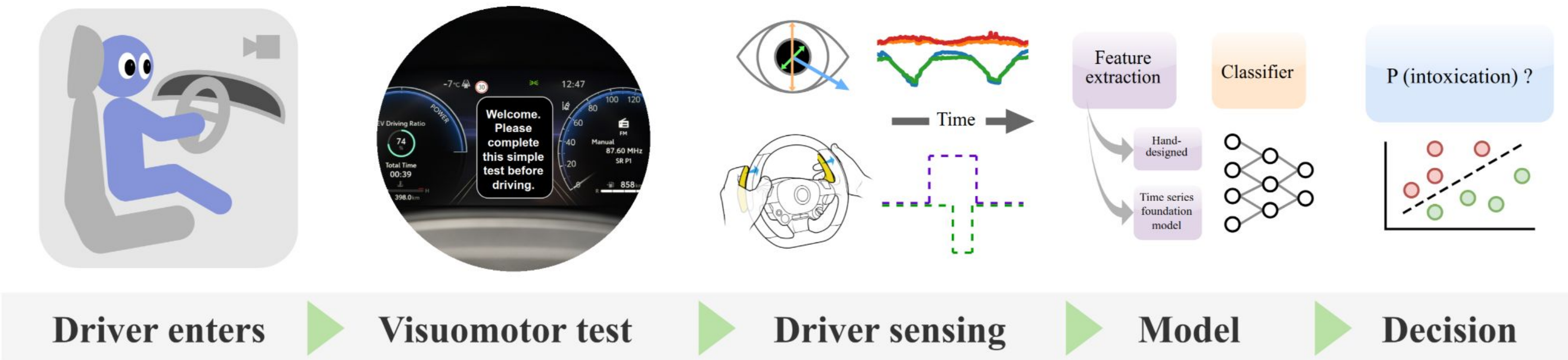


Goal

Predict alcohol impairment of driver *before* they drive, using only a driver monitoring camera.



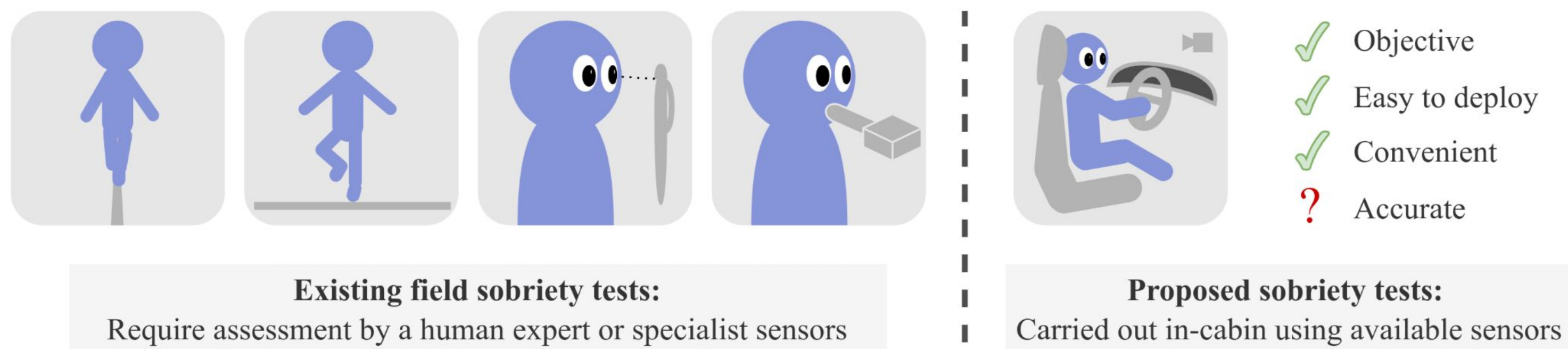
Why?

! >1/5 fatal road traffic accidents alcohol-related

📷 Driver monitoring cameras more common

🕒 Early detection better

What's new?

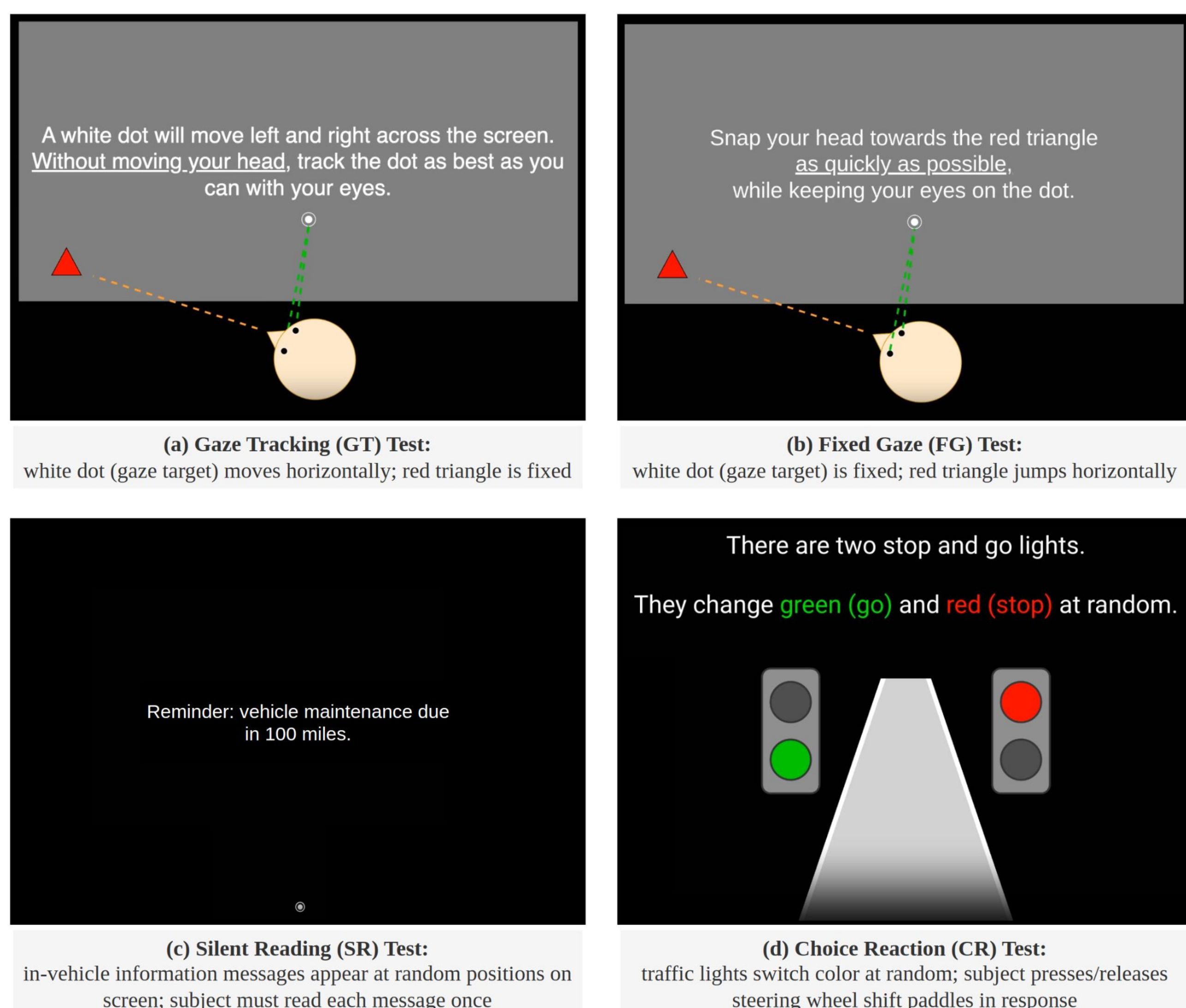


🤖 Automated, objective, convenient (<10s)

💰 No need for extra sensors or equipment

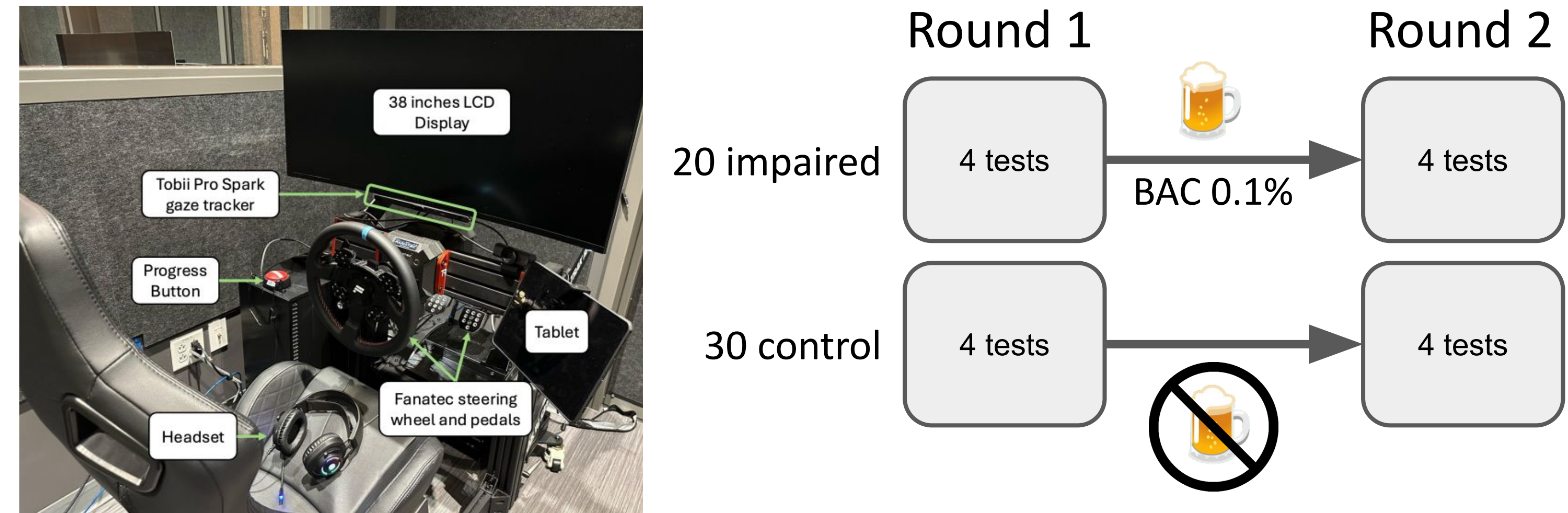
👁 Focus on gaze (privacy, generalizability)

Proposed tests



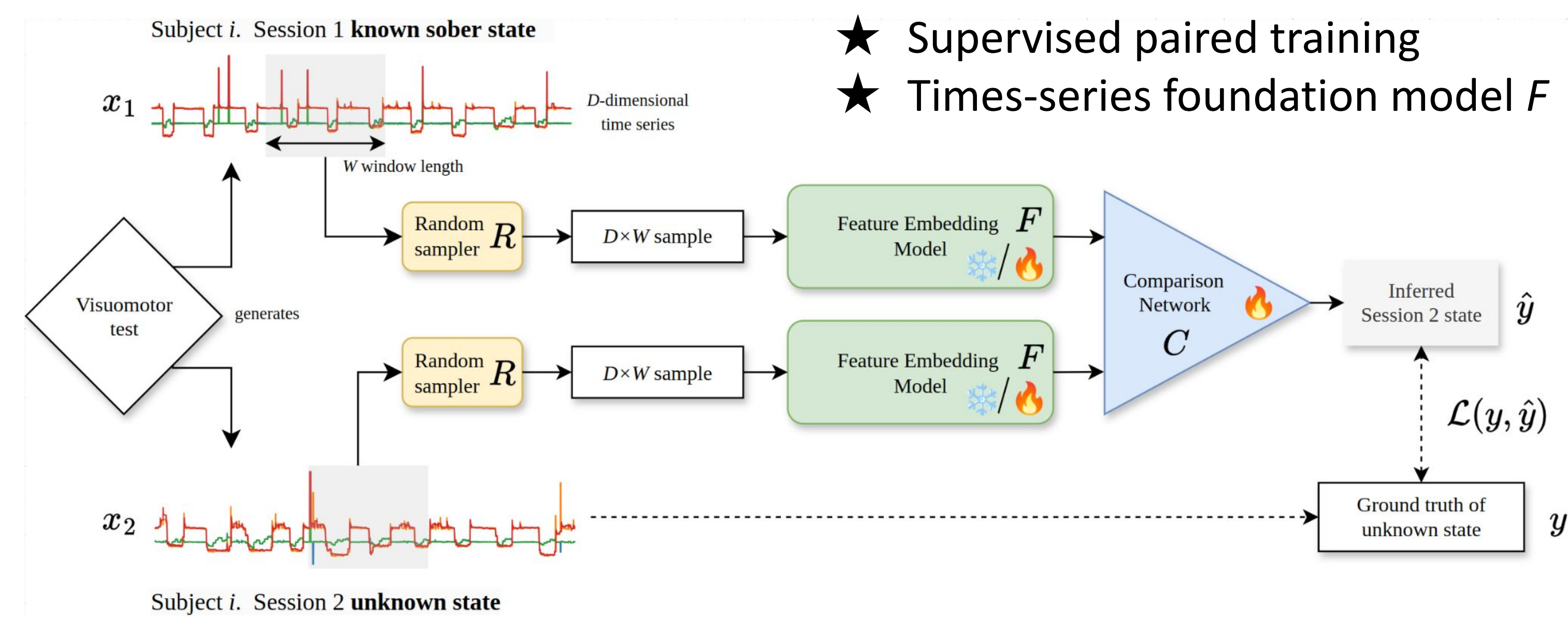
We designed four candidate visuomotor tests, to stress different types of user behavior to try to quickly elicit detectable signs of drunkenness.

Dataset

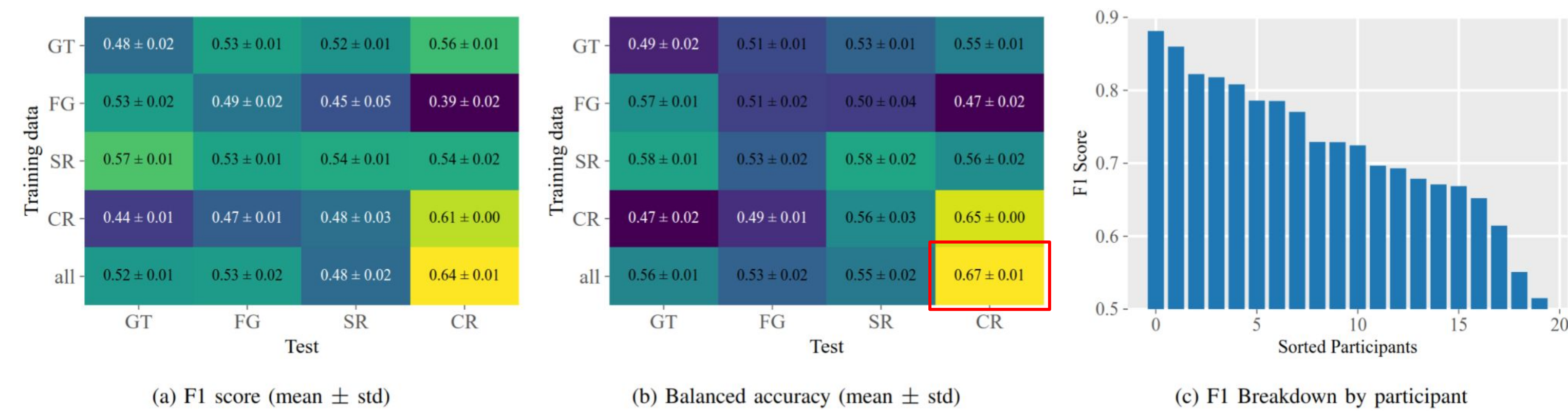


7.2h gaze tracking & reaction data from 50 subjects (total 100 samples per test)

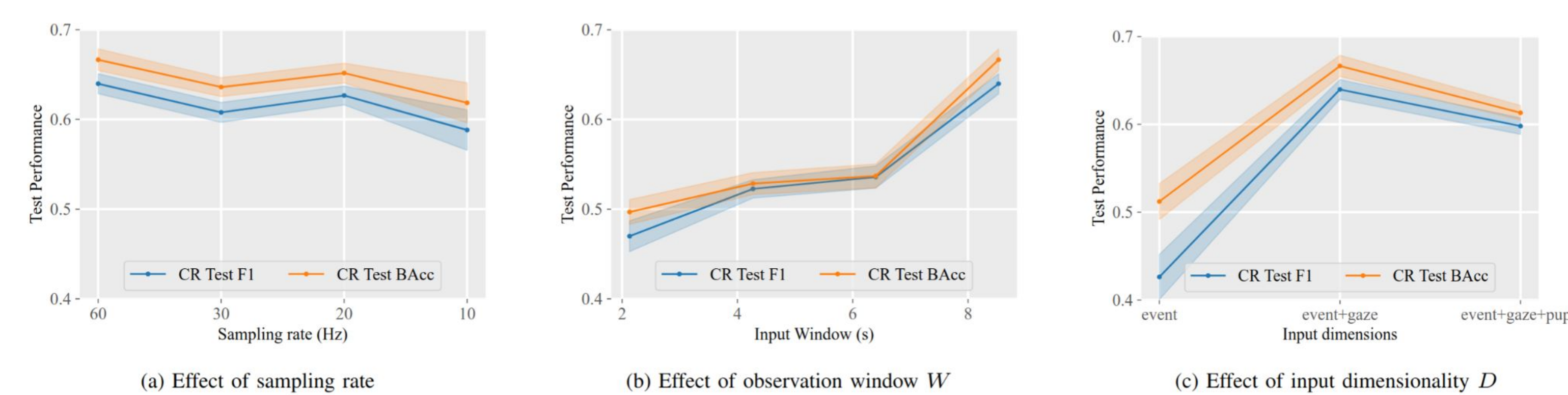
Model



Experiments



Choice reaction test most promising
Gaze tracking may be too noisy with fast motion



More data (input observation window, training data) would likely improve performance

What's next?

Promising, but plenty more to do:
→ data (repeats, subjects)
→ models (self-supervised, modalities)
→ test designs (many possibilities)
→ in-situ testing (real vehicle)

Data & code available!

