motorsport as #AlforGood
When **AI** becomes our **driver**, **co-driver**, **guardian** & **instructor**…
...what should our **minimal performance** expectation be?
AI should be held to same legal standards as human drivers
It starts with a **universal** assumption that all road users are; “**aware, willing** and **able**” to avoid collisions.
motorsport precedent
Realtime field monitoring of driver behavioural performance
LECLERC 299 KM/H
VERSTAPPEN 320 KM/H
DRS
Turn 2
ADA Turing Test for Autonomous Driving

a global performance standard for AI on our roads
An in-vehicle continuous assessment programme for AI System driving behavior
Meeting the **minimum** public **expectation** is that **AI Drivers** never engage in **reckless, dangerous or careless** driving…
...by comparing AI Driver performance to that expected of a competent and careful driver (with humans as the starting baseline)
…through **continual monitoring** of the AI Systems **self-reported**

**situational awareness** and **situational risk assessment** while

in operation…
…to validate that the AI Driver always remains “aware, willing and able” to avoid collisions
One-day workshop
The Turing test for autonomous driving

A global performance standard for AI on our roads

10 September 2019
ITU Telecom World
Budapest, Hungary
The need for three essential assessment programmes

<table>
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<th>iRAP</th>
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<td>ADA</td>
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RDW (Netherlands Vehicle Authority), the next phase of AI enhanced mobility requires a shift of focus;
Behavioural proofs for AI Systems on our roads

Prove AI Systems never engage in careless, dangerous or reckless driving behavior

Prove AI Systems meet, or exceed, the performance of a competent and careful human driver

Prove AI Systems remain aware, willing and able to avoid collisions at all times
Prove AI Systems never engage in careless, dangerous or reckless driving behavior.

In accordance to Article 7 of the Geneva Convention on Road Traffic “not to endanger”
Prove AI Systems meet, or exceed, the performance of a competent and careful human driver

In accordance with Article 10 of the Geneva Convention on Road Traffic “reasonable and prudent” driving
Prove AI Systems remain **aware**, **willing** and **able** to **avoid collisions** at all times.

In accordance to Article 7 of the Geneva Convention on Road Traffic “**shall avoid all behaviour that might cause damage to persons, or public or private property.**”
Global Forum for Road Traffic Safety (WP.1) resolution on the deployment of highly and fully automated vehicles in road traffic
IV. Recommendations for **automated driving systems** in highly and fully automated vehicles

**Recommendations:**
4(a) Make **road safety** a priority

4(b) **Monitor** and **safely interact** with the surrounding traffic environment

4(c) Endeavour to **safely tolerate errors**… of other road users in order to **minimize potential effects** of such errors

4(d) **Comply** with **traffic rules**

4(g) **React** to **unforeseen situations** in a way that **minimises danger** to the vehicle’s users and other road users

**Behavioural proofs for AI Systems on our roads:**

Prove AI Systems never engage in **careless, dangerous or reckless driving behavior**

Prove AI Systems **meet, or exceed**, the performance of a **competent and careful** human driver

Prove AI Systems remain **aware, willing and able** to avoid collisions at all times
ADA Turing Test

Codifies WP1 recommendations for automated driving systems in highly and fully automated vehicles into three universal behavioural proofs which can be continually monitored while AI Systems are in use.
Next steps…

UN #AIforGood community proposal to establish a new ITU-T Focus Group on “AI for Autonomous & Assisted Driving (AI4AD)”, with the terms of reference as provided in Annex A and ITU-T SG16: Multimedia as the parent study group.

Established to create a technical definition and specification for the three universal behavioural proofs.
Recommendation…

Establish collaboration between ADA, ITU Focus Group (AI4AD) & the Informal Group of Experts on Automated Driving to ensure harmonisation of technical specifications with WP1 recommendations.
Thank you for your consideration

Bryn Balcombe

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