Attendance

Edition		On-site		Off-site		Overall	
Year	Location	Tracks	Competitors (submissions)	Tracks	Competitors (submissions)	Tracks	Competitors (submissions)
2014	Busan (KR)	1	7 (11)			1	7 (11)
2015	Banff (CA)	2	6 (8)	1	4 (4)	3	10 (12)
2016	Alcalá (ES)	2	12 (14)	2	7 (9)	4	19 (23)
2017	Sapporo (JP)	2	10 (18)	2	10 (11)	4	20 (29)
2018	Nantes (FR)	2	15 (17)	2	19 (22)	4	34 (39)
2019	Pisa (IT)	2	10 (16)	3	20 (26)	5	30 (42)
2020	online			5	22 (32)	5	22 (32)
2021	Lloret (ES)			3	13 (26)	3	13 (26)

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Off-site versus on-site

From 2015 to 2020, competitors in off-site Tracks got a list of sensor readings for the whole path and were expected to provide a list of position estimates.

More and more, competitors saw this as **a problem of global optimisation**, rather than an emulation of a real-time system as seen for on-site Tracks.

Systems competing in on-site Tracks see a flow of sensor data and provide a concurrent flow of position estimates.

- The problem is causal – competitors cannot see the future
- real-time – competitors provide data within time constraints
- non-repeatable – competitors have only one chance per trial

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EvaalAPI

In 2021, we used an experimental **web API** where a competing system must provide an estimate for the current emulated time before receiving the next batch of sensor data and advancing the emulated time.

This way the problem becomes
- **causal** – competitors provide an estimate before seeing the next sensor reading
- **real-time** – estimates must be provided within time contraints
- **non-repeatable** – while the sensor data flow is provided, competitors provide a parallel flow of position estimates: time cannot be rewound

The API is very simple, based on HTTP GET requests and no cookies

EvaalAPI usage

In normal usage, a flow of repeated HTTP request like this is required:

```
GET /TRIAL/nextdata?position=10.422057,43.718278,1
```

It sets the position estimate for the current emulated time, gets the next 0.5 s worth of sensors data as response and advances the emulated time by 0.5 s

The web interface EvaalAPI comes with source code (AGPL), documentation, OpenAPI description and a Python demo client program.

EvaalAPI is **free software**. You find it at **https://evaal.aaloa.org/evaalapi**.

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Acceptance and outcome

Competitors reported no difficulties with the new web API, but some in Asia had **networking problems** reaching the server in Europe. This is **being fixed**.

Some competitors said they were happy with the new interface, because it **adds realism** to the competition and brings **a new level of challenge**.

Results of Tracks 3 and 4 in 2021 were similar to those of on-site Tracks 1 and 2, while from 2018 off-site results had started to become **unrealistically good**.

We disqualified a group of three **cheaters**, two of which were fake competitors.

EvaalAPI is **realistic**, simple, reliable, and ensures a **level playing field**.
It **will be used for all off-site Tracks** starting in 2022.

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