



IPIN 2019

TENTH INTERNATIONAL CONFERENCE ON
INDOOR POSITIONING
AND INDOOR NAVIGATION

30 September - 3 October 2019, Pisa, Italy



Consiglio Nazionale delle Ricerche



Area della Ricerca di Pisa

Call for competition (PDF, TXT)

28-29 September 2019 - Pisa, Italy

IPIN is pleased to announce the sixth IPIN 2019 Indoor Localization Competition, in conjunction with at the IPIN 2019 Conference in Pisa (Italy). The competition is aimed at bringing together the academic and industrial research communities for evaluating different approaches and envisioning new research opportunities for the indoor localization area, where no generally accepted standards exist yet.

IPIN 2019 Indoor Localization Competition will consist of several tracks, including on-site and off-site contests. Results will be presented during dedicated sessions of the IPIN conference and prizes will be awarded to the winners.

The competition builds on the experience of [previous competitions](#) and is based on the [EvAAL framework](#), ensuring experience, solidity and a well-founded scientific method. In 2019 the competition hosts five different tracks:

- Track 1: Smartphone-based
- Track 2: Video-based
- Track 3: Smartphone-based (off-site)
- Track 4: Foot-mounted IMU based (off-site)
- Track 5: xDR in industrial scenarios (off-site)

The winner of each track will be awarded a prize of 1500 €.

On-site tracks

The competition will take place in the CNR Area of Pisa (IT). An actor carries the competing system by walking in and between multi-floor

buildings. Position estimates are provided in real time. Data processing is local, without using any external aid. Survey of the area and system calibration is restricted to a single day.

Track 1 - Smartphone-based: The actor carries a smartphone which runs the competing system, using the sensors available on the smartphones to identify the user's position.

Track 2 - Video based: The actor carries video equipment on the upper part of the body (no Depth, no Lidar), processing is done using smartphone, tablet or laptop carried by the actor.

Off-site tracks

Competitors calibrate their algorithms in advance using a ground truth reference database, and compete using new unreferenced data.

Track 3 - Smartphone based: A pedestrian walking under realistic conditions in multi-floor buildings using data provided by a conventional smartphone.

Track 4 - Foot-mounted IMU-based: A pedestrian carries PERSY (PEdestrian Reference SYstem) a state-of-the-art Inertial Navigation System producing IMU data, MAG data & GNSS data. Maps are not provided.

Track 5 - xDR in industrial scenarios: Practical performance of xDR methods in industrial scenarios: sensor data are measured in actual operations in a restaurant and a factory by Android devices.

Technical competition details

The evaluation criteria for the competition, restrictions on the accepted technologies, technical rules to follow and a description of the benchmarks are detailed in the [technical annexes](#) to this call. Announcements and possible refinements of the annexes, also based on candidate competitors' comments, will be timely distributed on the competition discussion mailing list contest@evaal.aalooa.org and will appear on the IPIN web site.

All the data gathered by the competition committee during the competition, including data produced by competing systems, will be published after the competition for the purpose of research and comparison. Winners of the competition will be announced during the conference.

Competitor admission process

A *competitor* can be any individual or group of individuals working as a single team, associated to a single or a number of organizations, who wants to participate in one or several tracks. Only one team from the same organisation (laboratory) is allowed to compete.

Competitors apply for admission to the competition tracks by providing a short (2 to 4 pages) *technical description* of their localization system (in PDF, using this [template](#)), which includes a description of the algorithms and protocols used. The technical description must be sent by e-mail to the chairs of the intended track, which is indicated in the relative annex. Track chairs will accept or refuse the application in a short time, based on technical feasibility and logistic constraints.

After acceptance of the competitor's technical description, one member of the competing team is required to register to the IPIN conference, specifying that the registration is linked to a competition track. Full registration to the conference covers participation in the competition process (allotted time, support and

space) and the submission of one paper describing the system. Note: subscriptions related to competition allow for a single paper to be submitted, rather than the two papers mentioned in the [instructions for authors](#).

Competitors who are authors of an accepted paper will be allowed some time after the conference for updating it before publication.

Competitors who wish to test their system, but do not want to be included in the public rankings and compared with other competitors, may ask for that special condition in advance to the chairs of the relevant track, who can accept or refuse the application depending on their organisational constraints.

Competitors who wish to test their on-site system which does not fit any of the on-site tracks may ask chairs of Track 1 to be admitted off-track, which will be granted depending on organisational constraints.

Committees

See [conference committees](#).

Competition - Important Dates

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| Competition track proposal: | 30 March |
| Technical description: | 15 July 30 August |
| Notification of admission: | 1 week time |
| Result submission (off-site tracks): | 14 September |
| Survey and setup (on-site tracks): | 28 September |
| Competition (on-site tracks): | 29 September |