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ESREL 2021 Computer **Tutorial**

App's functionalities

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Agenda

Find here the different timetables and access the descriptions of each session with the speaker's information.

Personal Schedule

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Find here the different speakers, their description and all the sessions they will be involved in.

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Attendees

Find all the attendees here. You can use the search bar to look for someone in particular. Click on the profile to send a one-to-one message.

Exhibitors

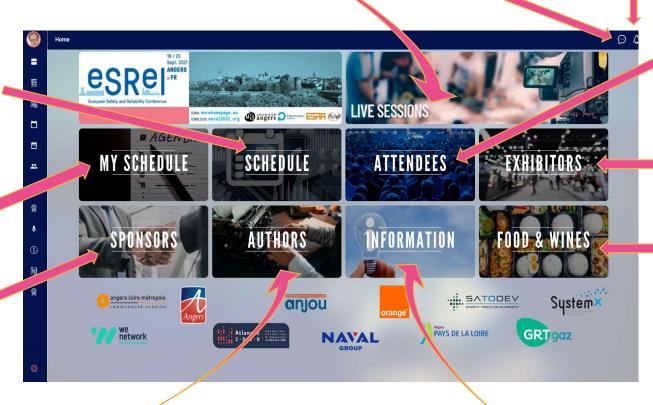
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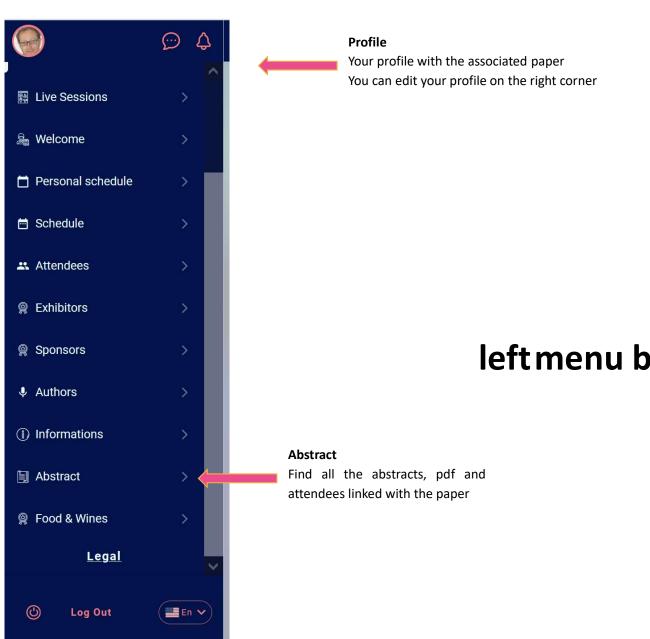
Food & Wines

Menu, wines, recipe of the day...

Information

Find all the information regarding the location, your venue and the various services.





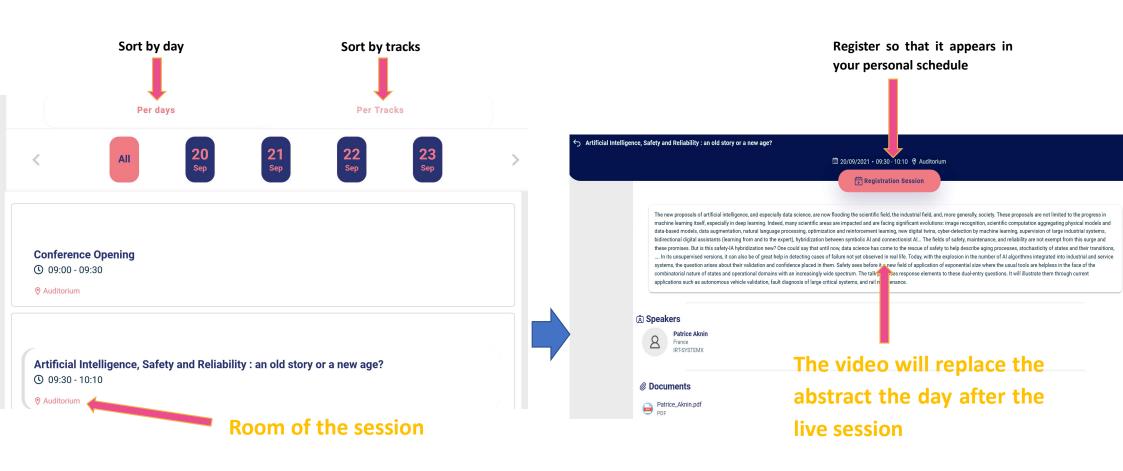


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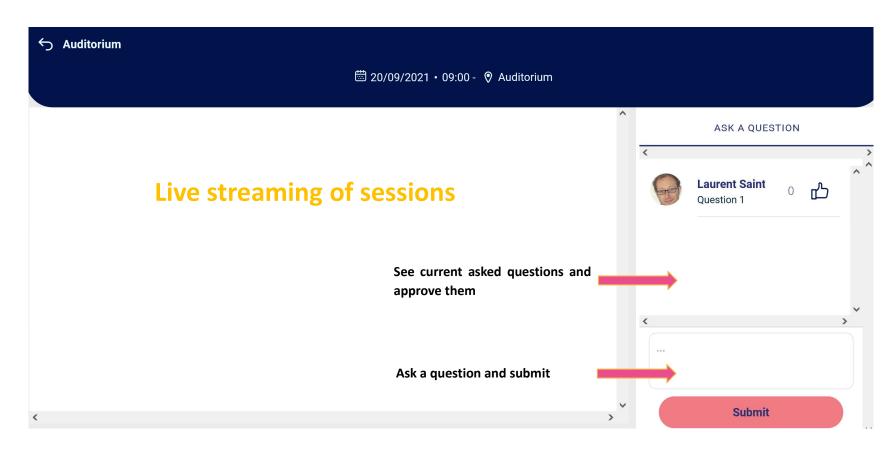
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Choose the room of the session you want to attend

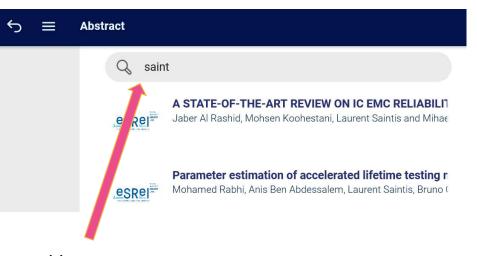


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Parameter estimation of accelerated lifetime testing models using an efficient...

Mohamed Rabhi, Anis Ben Abdessalem, Laurent

Accelerated lifetime testing (ALT) is a common way to estimate the reliability under use stresses through the extrapolation of the failure data collected from severe stress levels. The task of estimating the model parameters from experimental observations is of paramount importance to make good predictions. In this context, the ALT models parameters estimation has been approached in the literature with various classical methods. The graphical method is arguably the easiest and the most straightforward, but it presents several shortcomings. The most commonly used method for parameters estimation is the maximum likelihood method (MLE) because it has several desirable properties. However, in some circumstances, the likelihood function is intractable and cannot be formulated even in a closed form or fail to converge mainly when the sample size is small. This is always the case in ALT, because of the high cost of tests and testing time. Furthermore, using root-finding algorithms, the estimated parameters are highly dependent on the initial values and risk the local optima issue. Particularly for the ALT models, which involve numerous parameters, the MLE computation becomes memory consuming. To overcome these issues, the likelihood-free methods called also Approximate Bayesian Computation (ABC) were developped by replacing the evaluation of the MLE in the Bayesian Inference by other features and metrics. Nevertheless, in its basic form, the ABC algorithms still suffer from a low acceptance rate of sampling. To overcome this issue, a new variant of the ABC based on an ellipsoidal Nested Sampling technique (ABC-NS) is empolyed. It ensures important speed ups and provides a good approximation of the posterior distributions. In this paper, a brief introduction of the ABC-NS method and its algorithmic implementation are given. In the second part, the ABC-NS is applied to infer the ALT models using real data. The obtained results are discussed.

Documents



138.pdf PDF

Attendees



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