



Information Leaflet

PROJECT: LiquidJava – Extending Java with Refinement Types

RESPONSIBLE INVESTIGATOR: Alcides Fonseca

We therefore invite you to participate in our research study focused on evaluating the understanding and usability of the LiquidJava tool, designed as an extension to the Java programming language for static program verification.

Before deciding, we would like to introduce you to the details of this investigation, its *raison d'être*, its potential usefulness and the implications of your participation. A member of the research team will accompany you as you read this booklet and will answer any questions you may have.

1 - What is the study “LiquidJava – Extending Java with Refinement Types”?

This study aims to assess the usability and understanding of the LiquidJava system. This system was created within the scope of the homonymous master's thesis and constitutes an extension to the Java programming language, with the introduction of refined types and static verification of programs with these types, allowing greater confidence in the software produced. To assess the system created, data will be collected through interviews with participants where they will have to complete various tasks related to the understanding and usability of LiquidJava.

2 - Do I have to participate in this study?

Participation in the study is completely voluntary. We will describe the study and present the contents of this fact sheet, including details of your participation. If you agree to participate, you will sign a Consent Form. Copies of this document and the informed Consent Form will be provided to you.

3 - And if I want to give up on studying?

You are free to withdraw at any time without having to provide any reasons or explanations.

4 - What will I have to do as part of the study?

As part of the study, you will participate in 1 quiz session and carry out tasks related to Java programming, and especially using the LiquidJava tool.

Each session will take a maximum time of 2 hours but there is no mandatory minimum time.

The purpose of the investigation is to evaluate the tool created in a context of use. It is not intended to evaluate you. All recommendations and suggested improvements will allow the investigation to evolve and are welcome.

5 - What are the disadvantages and risks of participating?

No associated risks are foreseen and the research team's expectation is that the sessions in which they participate will be an enjoyable experience for the participants.

The time of the sessions will be defined by you.



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6 - What are the possible benefits of participating?

In our experience, people like to participate in studies that promote communication with scientists. Your involvement will help in evaluating the tool and we can improve it according to the responses and comments made.

7 - What happens when the study ends?

Data analysis will end on 07/27/2021. The study results may be published in conferences and academic journals. If you would like to know details about the results and implications of the study, we will send you a copy of the study report, but not before 7/30/2021.

8 - And if there is any problem?

If you have any concerns about any aspect of this study, you should speak to the lead investigator, Prof. Alcides Fonseca, who will do his best to elucidate you and answer your questions, by email, amfonseca@ciencias.ulisboa.pt. If you are unhappy or want to file a formal complaint, you can do so by contacting the Director of the Faculty of Sciences of the University of Lisbon [e-mail: direccao@fc.ul.pt].

9 - My information will be kept confidential?

Yes. We will follow all legal and ethical practices and all information about you will be treated absolutely confidentially. To ensure anonymity, personal records will only be available in their entirety to the lead investigator, and members of the research team will only have access to the data they need to know. If your data is used for publications or presentations, it will be completely anonymized, without any reference, direct or indirect, to your identity. If photographs are taken, and it is our intention to use them in any presentation, prior authorization will be requested. If you are available for us to use photographs or videos for that purpose, we will first ask you to sign specific permissions for that purpose.

10 - The study went through a review process?

Yes. In fact, this study was reviewed by the Ethics Committee for the Collection and Protection of Science Data (<https://ciencias.ulisboa.pt/pt/prote%C3%A7%C3%A3o-de-dados>). This committee reviewed the study proposal as well as all its materials and raised no objections from an ethical point of view.

11 - Who can I contact regarding this study?

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Please feel free to contact them on any matter related to this study.

Thank you very much.

Thank you for taking the time to us and for considering participating in this study.