ANITI

Porté par l'Université de Toulouse

POSTDOC PROPOSAL IN ARTIFICIAL INTELLIGENCE

Constraint and preference acquisition for an interactive driver assistant

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Location: Laboratoire d'Informatique, de Robotique et de Microélectronique de Montpellier – LIRMM

Net salary: according to experience

Duration: 24 months

DESCRIPTION

A postdoc position is offered within the CORAM project Audiomobility 2030, which is centered around a plan to develop an interactive assistant for drivers that will interact via voice and also visuals to help instruct and entertain passengers and driver during a car trip.

The research will be focused on acquiring a constraint model of the driver's preferences integrating the symbolic constraints gleaned from the conversational interactions provided by another component of Audio Mobility 2030, the conversational assistant.

Project partners: ETX Studio (Lead), Continental Automotive FRANCE SAS, ANITI, École Polytechnique de Paris

The post doc will be based at LIRMM, Montpellier, France.[1]

The goal of this postdoc is to design a method to acquire a constraint model representing implicit information about the driver's (and passengers') preferences.

This acquisition process will be based on what we know about driver/passengers (identity, preferences, history), as well as the context (alone/accompanied, weather, short/long trip, work/holiday...).

The proposed method may be based on prior work on the topic of constraint acquisition [Bessiere et al. 2017]. Modeling this information by a constraint network allows the system to validate the

[1] Part of the work can be done at LAAS-CNRS, Toulouse, France, depending on the recruitee's wishes.

coherence of the knowledge base, to determine the most appropriate questions whose answers will remove the remaining ambiguities, and of course, to compute the assistant's actions that are the most likely to satisfy the driver/passengers. For instance, consider the following interaction:

Assistant: "Would you want to listen to the game?"

Driver : "No, I don't like sports."

Such a dialog would lead to add an important constraint on the driver's preferences. Had the answer been less informative, e.g., a simple "No.", the follow-up question would then be useful to refine the model:

Assistant : "Would you ever want to get sport-related content?"

An important topic concerns the queries to ask to the driver and their impact on the convergence of the method. The goal is to maximise the information gain in order to provide useful recommendations with as few queries as possible.

References

Christian Bessiere, Frédéric Koriche, Nadjib Lazaar, and Barry O'Sullivan. Constraint acquisition. Artificial Intelligence, 244:315–342, 2017. Combining Constraint Solving with Mining and Learning.

REQUIRED SKILLS

Applicants should have a PhD in artificial intelligence, ideally in constraint programming, Boolean Satisfiability, and/or Machine Learning. Good programming and English communication skills are also required.

APPLICATION PROCEDURE

Formal applications should include detailed cv, a motivation letter and reference letters.
Samples of published research by the candidate will be a plus.
> applications should be sent by email to: advisor email
More information: https://aniti.univ-toulouse.fr/