

OpenCCE Contribution – Project S1

CertainTrust - A Robust Bayesian Trust Model for Humans and Agents

In line with our commitment to contribute to OpenCCE, we hereby present our first task to be integrated into OpenCCE.

CertainTrust offers a mathematically sound implementation of a Bayesian probability model in order to assess the trustworthiness of agents in multi agent systems. The system can calculate the expected trustworthiness of agents based on its prior experience and can also combine evidence provided by other sources in statistically sound ways. (Finally, it also offers a user interface to visualize trust when user involvement is needed.)

Since the implementation is complete, we intend to have a first draft of the integration guide ready within a month. Below follow some high level notes on the proposed task.

- ✓ Implementation (java code)
- Usage Examples – Rules:
 - Auto-generated code → object initialization
 - Rules (for static analysis): all probabilities in $[0,1]$ (some in $(0,1)$), $N > 0$ etc.
- Clafer Model (variability modeling language)
 - Well we don't have any variability (like different interchangeable algorithms etc. in *CertainTrust*) so this is just typical.
- High level questions for initialization
 - name of object (context), max N, custom initialization

We are very happy to contribute to the project and intend to integrate more functionalities in the future.

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CROSSING S1