

**FEDERAL UNIVERSITY OF ESPÍRITO SANTO**

Technological Center

Collegiate of Computer Science Course

Graduation Project Coordination

Graduation Project I

**SCENE 2.0: A Situation Management Service**

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Vitória

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**1 Introduction**

The large increase in data volume has imposed a need for data mining growth. However performing data mining is not a simple task to accomplish. Currently, the desired data has become increasingly complex, being known as situations, and thus are also forcing an increase in the processing complexity.

Situations are composite entities whose constituents are other entities, their properties and the relations in which they are involved [2]. Situations support us in conceptualizing certain “parts of reality that can be comprehended as a whole” [3].

As said before, situations are a kind of complex information, so they need to be treated respecting a temporal order, but there isn’t many known tools to do this job.

SCENE is a situation management platform, which supports the development of situation-aware applications by offering design artifacts for situation type specification and run-time support for situation lifecycle management (situation detection, which may involve composite situation pattern recognition and ultimately situation deactivation). SCENE leverages JBoss Drools engine (and its integrated Complex Event Processing platform) and enhances its functionality to natively support rule-based situation-awareness. The platform allows rule-based situation specification (and further situation lifecycle management) by means of a simple rule pattern [1].

* 1. **Motivation**

SCENE supports the specification of situation types as well as their implementation, which encompasses the entire situations life cycle management. SCENE also supports temporal correlation between situations.

In the past few years SCENE has been used by research groups, such as [4][5][6]. With time, users have identified requirements to improve SCENE’s usability by final applications, such as use the deprecated Drools 5.5.0 Final version and import SCENE as an API, literally integrating the SCENE-core with every application developed.

Over the years, new requirements have been identified and the tool needs to evolve to incorporate new functions that tackle these requirements.

* 1. **Main goal**

This graduation project has the goal to evolve the SCENE platform to the newest JBoss Drools version, making it easily adaptable to newer versions to come and explore the new features offered by it such as a new pattern-matching algorithm (PHREAK).

Also uncoupling SCENE from the user generated applications, transforming the platform in a service which the user won’t be obligated to integrate anything to its project and just implement the necessary to retrieve the desirable information.

* 1. **Approach**

The approach that this project will follow is i) study the theory about situation awareness, rule based paradigm and events, ii) raise and analyze requirements and reevaluate and adapt the previous ones for the proposed service, iii) design and implement a new service to detect situations accord with the raised requirements, iv) employ the new developed service and identify problems or some other design possible failure.

* 1. **Schedule**
* 1st Activity – Study SCENE and Drools
* 2nd Activity – Raise requirements for the platform
* 3rd Activity – Adapt SCENE to the new technologies
* 4th Activity – Test the adapted platform
* 5th Activity – Transform the platform in a service
* 6th Activity – Test the new service

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|  | **August** | **September** | **October** | **November** | **December** |
| **1st Activity** | **X** | **X** |  |  |  |
| **2nd Activity** |  | **X** | **X** |  |  |
| **3rd Activity** |  | **X** | **X** | **X** |  |
| **4th Activity** |  |  | **X** | **X** |  |
| **5th Activity** |  |  | **X** | **X** | **X** |
| **6th Activity** |  |  | **X** | **X** | **X** |

**2 References**

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4. Rendon, Oscar Mauricio Caicedo, Felipe Estrada-Solano, and Lisandro Zambenedetti Granville. "An Approach to Overcome the Complexity of Network Management Situations by Mashments." *2014 IEEE 28th International Conference on Advanced Information Networking and Applications*. IEEE, 2014.
5. Moreira, João, et al. "Developing situation-aware applications for disaster management with a distributed rule-based platform." (2015).
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