Generation and Validation of Event Processing Rules in EnStreaM

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What are we demonstrating?
- A system which support domain experts in exploring large datasets
- **Our goal**: provide to the experts an environment where they can create and validate the rules

EnStreaM Infrastructure
- integrated and scalable software modules
- allows development of various applications
- used in the ENVISION project for stream data mining
  - in environmental scenarios: landslides, oil spills and river floods

Rule Creation Process

- Define event parameters
- Test on historical data
- RuleML Export

Illustrative example
- If the amount of rainfall exceeds 250 mm per day in 3 consecutive days then a landslide can occur

```
<And><Atom><op><Rel iri="openCyc:sensorObservation"/></op>
  <Var> sensor </Var>
</Atom>
<Atom><op><Rel iri="openCyc:Raindrop"/></op>
  <Var> measurement </Var>
</Atom>
<Atom><op><Rel iri="openCyc:duration"/></op>
  <Var> measurement </Var>
</Atom>
<Var> val1 </Var>
<Ind type="xs:time">24:00:00</Ind>
<Atom><op><Rel iri="openCyc:greaterThanOrEqualTo"/></op>
  <Var> val1 </Var>
  <Ind type="xs:float">250</Ind>
</Atom>
```

Future work
- Extend EnStreaM for real-time monitoring of streaming data in order to detect the events described in the rules generated
- **Integrate the rules** discovered into knowledge bases used by specific reasoning engines,
  - semi-automatic extension of knowledge bases
  - support for advanced reasoning for problems such as complex events processing, anomaly detection or automatic monitoring

References
- http://www.opencyc.org
- http://www.envision-project.eu/