

LAIR

L. Michelle P. Roos P. Shakarian G. Stoker

Department of Computer Science
Universities of Maryland

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LAIR Problem

Given a user in a particular world,

- 1 how can the information relevant to the user be best **represented** in order to enable the derivation of information requirements
- 2 given such a representation, how can the **information requirements** be **derived or anticipated**.

Combined, 1) and 2) ask how the **context** of the user can be appropriately modeled and constructed.

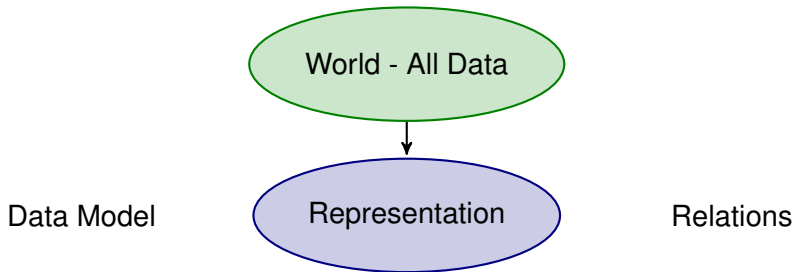
Definition

Information Requirements is the set of information relevant to the user that can be used to improve the user's quality of life.

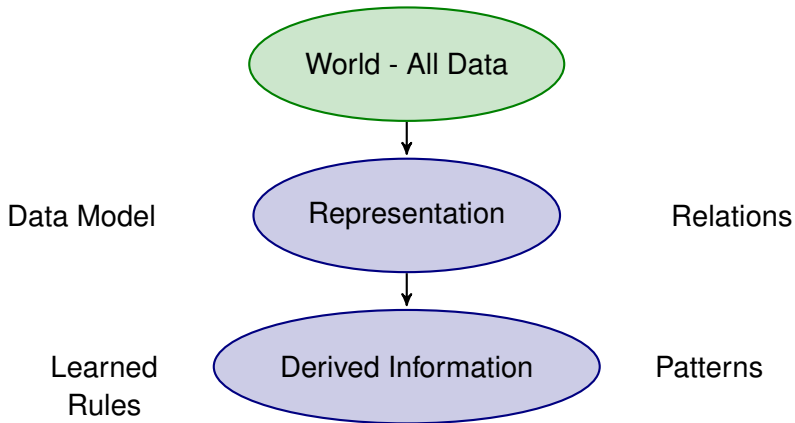
World to Context

World - All Data

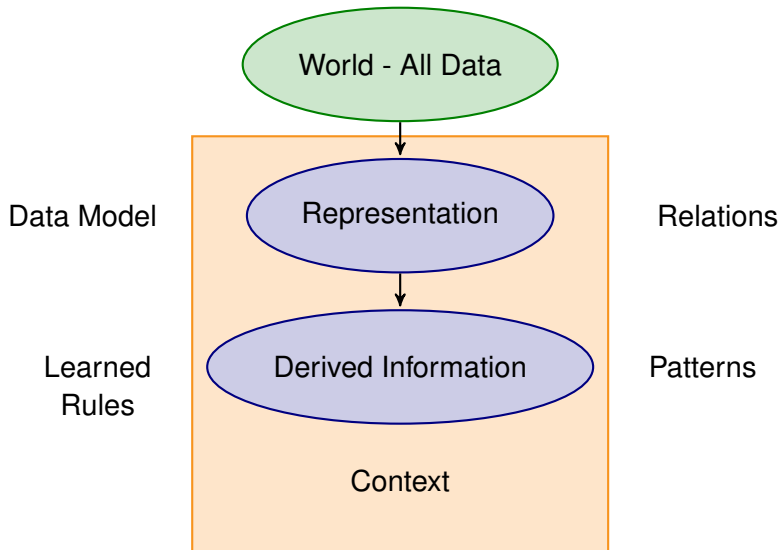
World to Context



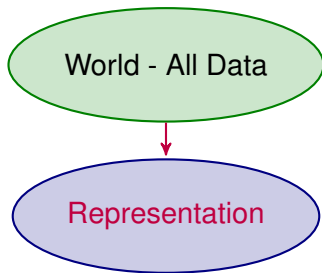
World to Context



World to Context



LAIR System



- **Context Collector** gathers tagged information from the world over time and stores in a SQL database. We shall refer to the data in the database as the *context base*.
- **Context Organizer** classifies the information in the context base according to a specified model (based on some parameters set by the user).

Representation

Context Collector

All information gathered by the context collector will be stamped with the following meta-data, if applicable:

- Date/time
- Lat/long
- Identifier

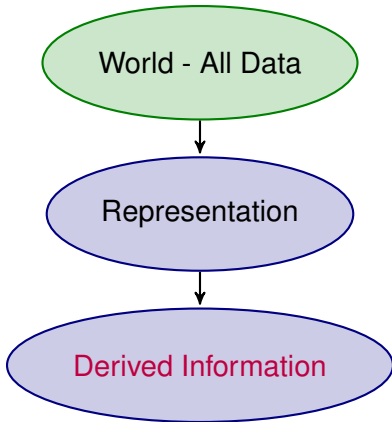
Representation

Context Organizer

Organizes data gathered by context collector into:

- **Affiliation Network Schema**
 - entities: *Actors* and *Events*
 - *Participation* relationship
 - schema:
 $A(ID_a, a_1, a_2, \dots, a_n)$
 $E(ID_e, e_1, e_2, \dots, e_n)$
 $P(ID_a, ID_e)$
- **Global Propositions**
 - possibly from other sources

LAIR System

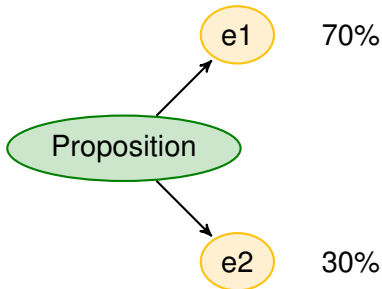
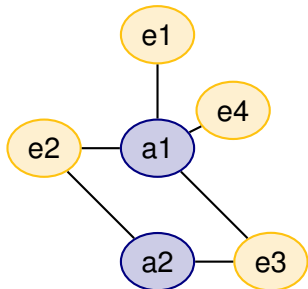


- **Context Synthesizer** takes the information from the context organizer, and using a combination of machine learning and information visualization techniques, generates information for the user about his behavior.

Derived Information

Context Synthesizer

- Graph based tools for visualization → *symbiotic information discovery*
- Graph and relational learning techniques
- Rule-based learning incorporating global propositions with event information from graph



End
By next time: Our Domain