PhD Course on "Temporal constraint networks"

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In many area of AI, natural language cognition, scheduling, planning, qualitative reasoning, etc., representing and reasoning about time is an important research topic.

A temporal reasoning system should consist of a temporal knowledge base, a service to check its check its consistency, and an inference mechanism capable of discovering new information.

Constraint processing frameworks and techniques are usually considered for such temporalreasoning issues.

A constraint processing framework works on entities and constraints. Two type of temporal entities are considered: points and intervals. Intervals correspond to time periods during which events occur or proposition hold, and points represent beginning and ending points of some events. Temporal statements like "beginning of A precedes the end of B" or "the duration of task A has to be in the range [1, 10]" are treated as constraints on the location of entities along the time line. There are two type of constraints: qualitative and quantitative. Qualitative constraints specify the relative position of paired entities, and quantitative constraints place absolute bounds or restrict the temporal distance between points.

In this short course, after an introduction to the field of constraint processing, the most relevant graph based temporal constraint models are presented and analyzed to give the state of art in such field.

Outline of the topics
Firs part
Introduction to Constraint processing
- Constraint networks
- Consistency and constraint propagations
- Directional consistency

Second part
Introduction to Temporal Networks
- Simple Temporal Networks
- Simple Temporal Networks with Uncertainty
- Conditional Simple Temporal Networks

CLASS MEETING

Wednesday - 13/11, 20/11, 27/11, 04/12, 18/12 → 9.00 – 11.00 Aula Seminari Atrio – Cà Vignal 1
Friday 15/11, 22/11, 29/11, 13/12, 20/12 → 15.00 -17.00 Aula Seminari Atrio – Cà Vignal 1