Welcome to

Knowledge Engineering

Prof. Dr. Knut Hinkelmann
Dr. Emanuele Laurenzi

Organization

Lecturers

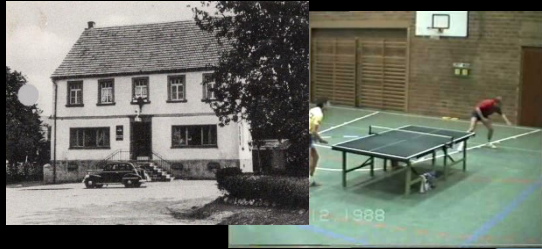## Prof. Dr. Knut Hinkelmann

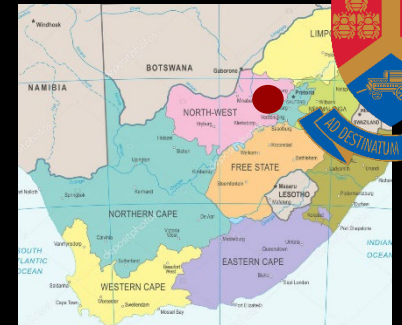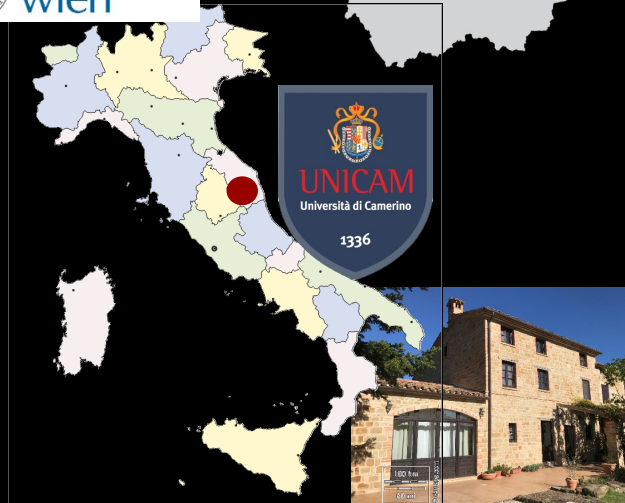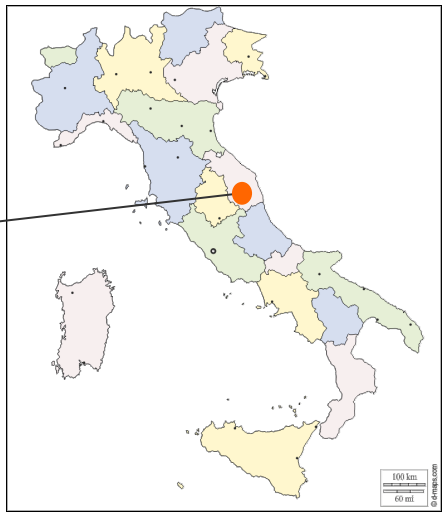## Dr. Emanuele Laurenzi

About Knut

OMLAB

FHNW – University of Applied Sciences and Arts Northwestern Switzerland

About Emanuele

Let's connect over LinkedIn

Module Objective:
Supporting Knowledge-Intensive Processes

- After completion of this module, the participants

  - will be able to assess which kind of knowledge representation and reasoning is adequate

  - are able to develop appropriate knowledge-based systems

  - can value the advantages of knowledge-based systems with respect to their costs

  - can create conceptual models of a domain

  - know approaches to turn data into knowledge that helps to make the right decisions.

Module Content

- Introduction: Knowledge in processes

- Decision Tables

- Rules
  - Textual represented rule (i.e. Horn clauses)
  - Forward and backward chaining
  - Data-driven and Goal-oriented
  - Negation-as-failure

- Fuzzy Logic

- Learning Decision Trees

- Knowledge Graphs
  - RDF, RDFS, SHACL
  - Ontology Engineering

- Graphical Models
  - Modelling and Meta-modeling
  - Ontology-based meta-modeling

Module Organization

- Lectures: presentations, discussions, exercises

- Assignments/homework
  - Readings to prepare lectures
  - Exercises during weeks

- Credits: 6 ECTS

- Assessment:
  - A project

Module schedule

	Timeslots	Hours	Lecturer	Room	Topics	Webex
March						
Monday 17th	2pm - 6pm	4	Dr. Laurenzi/Prof. Hinkelmann	AB1	Knowledge in Processes	https://unicam.webex.com/meet/emanuele.laurenzi
Tuesday18th	9am - 1pm	4	Dr. Laurenzi	AB1	Decision-Aware Business Processes	https://unicam.webex.com/meet/emanuele.laurenzi
April						
Monday 14th	2pm - 6pm	4	Prof. Knut Hinkelmann	AB1	Rules	https://unicam.webex.com/meet/knut.hinkelmann
Tuesday 15th	9am - 1pm	4	Prof. Knut Hinkelmann	AB1	Rules	https://unicam.webex.com/meet/knut.hinkelmann
Monday 28th	2pm - 6pm	4	Prof. Knut Hinkelmann	AB1	Fuzzy Set	https://unicam.webex.com/meet/knut.hinkelmann
Tuesday 29th (30th)	9am - 1pm	4	Prof. Knut Hinkelmann	AB1	Learning Decision Trees	https://unicam.webex.com/meet/knut.hinkelmann
May						
Monday 5th	2pm - 6pm	4	Dr. Emanuele Laurenzi	AB1	Knowledge Graphs	https://unicam.webex.com/meet/emanuele.laurenzi
Tuesday 6th	9am - 1pm	4	Dr. Emanuele Laurenzi	AB1	Ontology Engineering	https://unicam.webex.com/meet/emanuele.laurenzi
Monday, 19th	9am - 1pm	4	Dr. Emanuele Laurenzi	AB1	Machine Reasoning - SPARQL, SWRL, and Contraints-based language (SHACL)	https://unicam.webex.com/meet/emanuele.laurenzi
Monday 26th	2pm - 6pm	4	Dr. Emanuele Laurenzi	AB1	Ontology-based Modeling	https://unicam.webex.com/meet/emanuele.laurenzi
Tuesday 27th	9am - 1pm	4	Dr. Emanuele Laurenzi	AB1	Agile Meta-modeling	https://unicam.webex.com/meet/emanuele.laurenzi

Module Information

Website

http://www.didattica.cs.unicam.it/doku.php?id=didattica:ay2425:kebi:main#knowledge_engineering

Literatur

- ◆ No Books
- ◆ Reading material will be provided for download