



# The IIT Mandi Summer School on Representation in Artificial Intelligence

July 19-28, 2017



Artificial Intelligence has been in the news for the last few years because of the impact that it has started making in the real lives of people. These advancements have been fuelled by the information available on the World Wide Web (WWW), large amounts of data being generated by online activity, availability of more powerful computing resources, and maturing and coming together of many techniques, specifically in machine learning and analysis of big data.

The next generation intelligent systems will be autonomous agents, some of them embodied in autonomous physical systems like robots, or self-driving vehicles, and others being virtual agents. Autonomous agents will need to create a representation of their environments, map sensory inputs to these representations, and reason about their goals and plans in the context of their resources.

The aim of this summer school is to bring budding AI researchers up to date with this somewhat neglected aspect of building intelligent machines. The goal is to explore the representation that an agent needs to have to be called intelligent, what is the form and structure of knowledge representation, and how it can be acquired. In this context we will explore the relation between knowledge, memory and language. We will also explore how knowledge can be acquired from the WWW, like for example in the NELL project at CMU. We look at the cognitive aspects of memory and the role experience can play in problem solving. We will also look at first order logic; description logic a subset that is the basis of the ontology representation in OWL; and its extensions like the event calculus and epistemic logic that would allow agents to reason about other agents and their actions.

The summer school is targeted at PhD students and young scientists starting work in AI. There is no registration fee, but seats are limited. Selected participants will be provided accommodation and reimbursed part of their travel. A few seats may be available for industry sponsored persons on payment. Please look at the <http://www.rinai.iitmandi.ac.in/> for who can apply and the application process.

For any queries please write to [rinai@iitmandi.ac.in](mailto:rinai@iitmandi.ac.in) or [khemani@iitmandi.ac.in](mailto:khemani@iitmandi.ac.in)

#### Organizing Committee

Deepak Khemani (IIT Mandi)  
Anil Kumar Sao (IIT Mandi)  
Sutanu Chakraborti (IIT Madras)  
Dileep A. D. (IIT Mandi)  
R Padmanabhan (IIT Mandi)  
Astrid Kiehn (IIT Mandi)  
Aditya Nigam (IIT Mandi)  
Samar Agnihotri (IIT Mandi)

#### Speakers

R Ramanujam (IMSc Chennai)  
Dipti Deodhare (CAIR, Bengaluru)  
Partha Talukdar (IISc Bangalore)  
Vivek Balaraman (TRDDC, Pune)  
Deepak Khemani (IIT Mandi)  
Sutanu Chakraborti (IIT Madras)  
Baskaran Sankaranarayan (IIT Madras)  
Aditya Nigam (IIT Mandi)

#### Location

IIT Mandi,  
Kamand Campus  
Mandi District, 170005  
Himachal Pradesh

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