AAAI-19 Tutorial on Plan Activity and Intent Recognition

Tutorial Syllabus

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Tutorial Description

Plan, activity, intent and goal recognition all involve making inferences about other actors (software agents, robots, or humans) from observations of their behavior. This synergistic area of research combines techniques from user modeling, machine vision, automated planning, intelligent user interfaces, human-computer interaction, autonomous and multi-agent systems, natural language understanding, and machine learning. It plays a crucial role in a wide variety of applications including assistive technology, software assistants, computer and network security, behavior recognition, human-robot collaboration and more. This wide-spread diversity of applications and disciplines, while producing a wealth of ideas, models, tools and results, has contributed to fragmentation in the field.

This tutorial seeks to amend this by providing an overview of the recognition literature, as well as a description of the core elements that comprise a recognition problem. In particular, using several motivating examples, we will describe the different recognition tasks, outline their scope, and describe the relationship between them. Finally, we will describe the state of the art of recognition research, highlighting the leading computational representations, algorithms, empirical methodologies, and applications. This half-day tutorial is aimed at general AI students and researches that wish to explore potential research directions in recognition, or use recognition to enhance their ongoing research.

Instructors

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Prerequisites

This Tutorial assumes at least one graduate level introductory course in artificial intelligence. It will assume a basic understanding of first order logical AI representations of states and actions, logical and probabilistic reasoning.

Outcomes

Upon successful completion of this course, a student will be able to:

- Understand components of and issues related to plan, activity and intent recognition.
- Recognize different recognition task.
- When encountered with a new recognition problem, choose a suitable solution approach.

Tentative Tutorial Outline

1. Historical overview of recognition as an AI problem.

2. Problem statement and formalization.

3. Solution techniques and methods.