

# Understanding Human Experience

Henry Kautz

One of the earliest goals of research in artificial intelligence was to create systems that can interpret and understand day to day human experience.

Early work in AI, in areas such as story understanding and commonsense reasoning, tried to tackle the problem head on, but ultimately failed for three main reasons. First, methods for representing and reasoning with uncertain information were not well understood; second, systems could not be grounded in real experience, without first solving AI-complete problems of vision or language understanding; and third, there were no well-defined, meaningful tasks against which to measure progress.

After decades of work on the “bits and pieces” of artificial intelligence, we are now at a time when we are well-poised to make serious progress on the goal of building systems that understand human experience. Each of the previous barriers is weakened:

First, we now have a variety of expressive and scalable methods for dealing with information that is both relational and statistical in nature. Second, the development and rapid deployment of low-cost ubiquitous sensing devices - including RFID tags and readers, global positioning systems, wireless motes, and a wide variety of wearable sensors - make it possible to immediately create AI systems that are robustly grounded in direct experience of the world. Third, there are a growing number of vital practical applications of behavior understanding, including assistive technology for the disabled, aging in place, security and surveillance, and data collection for the social sciences.

I believe that understanding human experience will be a driving challenge for work in AI in the years to come, and that the work that will result will profoundly impact our knowledge of how we live and interact with the world and with each other.