Title: Cognition and Reasoning for Multi-modal Data

Abstract: At present, we are in an era of enormous media data. A large number of images, videos, texts and audio and other multi-modal data rapidly emerged, with diverse types, wide sources and complex relationships. Based on these, artificial intelligence research is also moving from the previous single-modal intelligence to more complex multi-modal intelligence. The cognition and reasoning for multi-modal data is the bottleneck of multi-modal intelligence, studying and solving this problem will greatly promote the development of intelligent application. This report will cover the opportunities and challenges faced by the cognition and reasoning of today's multi-modal data. At the same time, the latest research results of our group will be introduced from four aspects, including Multi-modal Representation Learning, Multi-modal Semantic Mining, Multi-modal Knowledge Reasoning and Trusted Computing.