INVITATION TO THE LECTURE SERIES ARTIFICIAL INTELLIGENCE

Time: Tuesday December 17, 2019, 14:00 h
Place: Lecture Hall 1 (HS 1)

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Generating Verbal LEGO Instructions for the Blind and Seeing Impaired

Building LEGO models provides a unique opportunity for blind and seeing impaired people to experience more of the world. Not only is it fun, they can create their own models of complex things in the world that they can later on sense and perceive with their fingers and hands. But it's not only the tactile sensory input that lets them understand these things better, they also have constructed them on their own, so they know a lot of internal properties that would not reveal themselves by prefabricated models.

A severe problem is that building instructions for all LEGO models are issued as graphic images – which is a brilliant idea, yet, this very fact completely blocks accessibility for the blind. So, they are 100% dependent on sighted others to help them, or – even worse – to build the models for them, thus depriving them from the building experience.

It was an initiative started by a blind young man from Boston, Matthew Shifrin, to provide written instructions for a bunch of models to the blind community. These instructions had been written by a friend for him who passed away a few years ago. The community was excited, but since the collection of instructions could not be extended, Matthew contacted LEGO to take over. LEGO Creative Lab found support in a small team at OFAI, and such, for almost a year we worked on facilities that enable the production of verbal instructions. One core component is automatic text generation, but there is much more to consider beyond that in order to achieve a state where instructions can be produced automatically.

In this talk we will shed light on details that need to be worked on in order to address this challenge. In a pilot project we created instructions for 4 models that can be accessed by screen-readers or audio, as well as text that can be used for Braille-readers. The launch in Aug. 2019 was a big success. At the moment we are moving beyond this pilot phase to enable the production of verbal building instructions in industrial dimensions.

Hosts: Johannes Kofler   Gerhard Widmer and Markus Schedl
              Institute for Machine Learning   Institute of Computational Perception

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