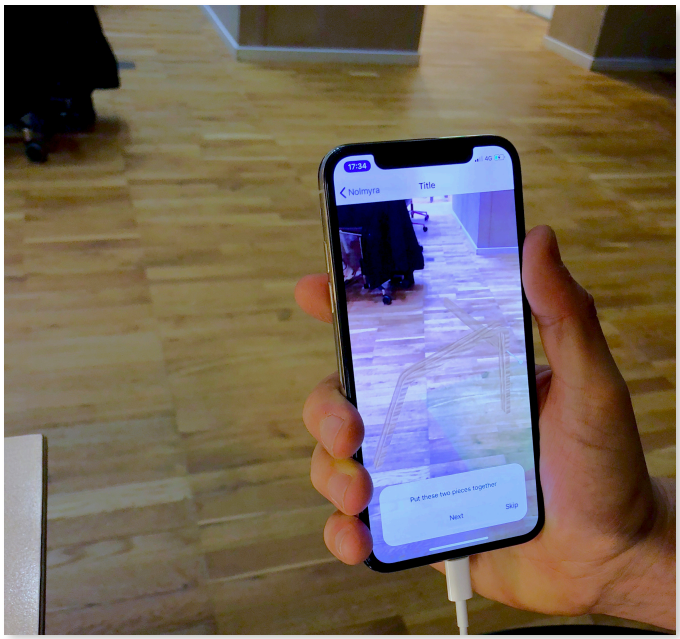
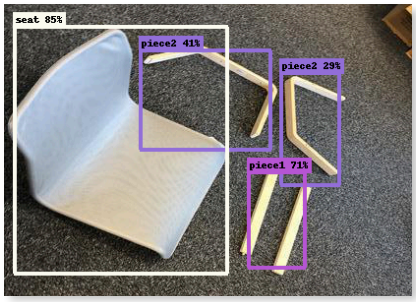
February 7, 2018



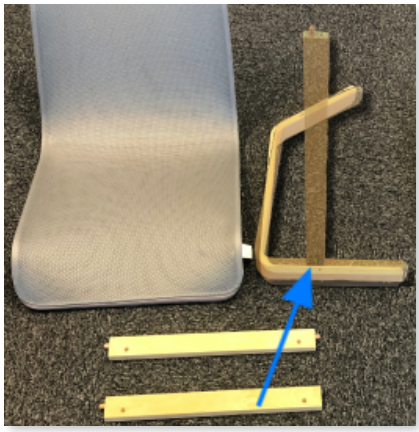
Object detection in Augmented Reality

By Jan Svensson and Jonatan Atles

Imagine never having to use paper instructions when assembling furniture again. Instead, a smart application on your phone could instruct you. Our project makes that vision a reality. We have combined augmented reality, as seen in apps such as Pokémon GO and IKEA Place, with state of the art object recognition methods.



An iPhone identifying furniture parts on the screen.



A virtual object can be placed on top of a real object to visualise an instruction in an application.

Augmented reality is an upcoming billion dollar industry. As of today, lots of exploration needs to be done. We explore whether it is possible to detects object in an augmented reality experience to enhance the user experience. In our study, we find that it is technically possible to accomplish such a goal.

We have built a finished iPhone app that finds and identifies furniture parts on the screen and shows how to put them together in 3D. After having conducted user tests we found that a large amount of people like the idea of having a paperless instruction manual for mostly two reasons. The first reason is that it is environmentally friendly. The second reason is that it makes the instructions more intuitively.

For developing these kinds of applications there are many tools available to ease the process. We have used ARKit by Apple to make the Augmented Reality experience. For finding and identifying objects we have used a tool called Turi Create.

This is just a sample of what can be done with this type of technology. In the future, the application could be run on a pair of glasses instead of a phone. You could also have a friend join in on the experience through their glasses and build a furniture together.