Individual Reflection

DBM130

L. C. de Jong
Eindhoven university of technology
Industrial Design
l.c.de.jong.1@student.tue.nl

Initially I planned to follow this elective 'Designing Intelligence in Interaction' to further explore the possibilities of machine learning. Mainly because improving my expertise in technology and realisation in order to create intelligent product will allow me to create these end-user adaptable products. User-centred, research-based design processes are at the core of my professional identity as a designer. However, the period of using a design is often longer than the period for testing/ developing. By gaining experience in machine learning I think I can improve my position as a user-centred designer. On top of this I believe both human-beings (and therefore users) and their context are constantly changing. Especially in the fast-moving world we live today. For designers this brings a new challenge of staying up-to-date. How to make sure your design is still relevant by the time you realized it. The possibility of end-user adaptable products is of major importance in facing this challenge. When looking back the content of this course definitely touched upon these topics and some small steps were made towards becoming the designer I want to be. However, I (re)discovered how big and complex the term 'machine learning' actually is. I do not think one ten-week elective gave me the opportunity to really build expertise is this enormous field of challenges.

Nonetheless I did gain more expertise in the different possibilities of certain algorithms. During my previous project I was already introduced to K-nearest neighbor and content-based filtering. During this elective I learned more about KNN and (in the end) decision trees. For me the main learning point of this elective is the relation between data input, the chosen methodology and the (relevance of) the generated output. When talking about algorithms both the amount of data input and possible methodologies is almost endless. However, this does not guarantee a relevant data output for the chosen challenge or context. When getting acquainted with (inferential) statistics I realized that just because you can calculate a value it does not mean that that value has a meaning. You can calculate the significance of literally anything, but this p-value only has a meaning if you properly frame a scope, formulate a (grounded) hypothesis, use the right variables and the appropriate methodology. While working with algorithms is in many ways very different as performing statistical analyses the way of reasoning (for me) is quite similar. During the project we were constantly debating which variables to use and how to interpret the generated results. While I did not discover a generalizable answer yet, I do feel more and more intuition in making these types of decisions.

Moreover, this challenge becomes even bigger if designs become more intelligent than the human-mind. In our current design, its development and evaluation we used user-generated answers as a point of reference to verify the machine-generated results. However, the possibilities of machine learning (when going beyond the scope of dinner suggestions) will need a different way of evaluating/ verifying in the future.

From a more practical point of view I do not (yet) feel equipped to realize ML-based systems myself. Due to the scope of this project, the available time and the expertise within my group I did not manage to do a lot of programming myself. We did discuss all different steps and I definitely tried to understand the way of reason behind the algorithm but 'seeing something work' and 'making something work' are not the same thing.

In conclusion I did gain more understanding of the possibilities of machine learning and creating end-user adaptable designs. I experienced the challenge of data gathering and cleaning in relation to the chosen methodology. I discovered ways to evaluate the machine-generated output, in relation to the chosen context, user and scope. I need more time and practice to develop these types of intelligent systems myself (especially in relation to programming).