Smarter than Google?

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Dutch mathematician Nicole Koenderink obtained her PhD yesterday. Her thesis involved a search engine that is smarter than Google. This machine taps into the knowledge of experts and poses questions in return.

Whoever googles 'appel' (Dutch for *apple*) will not only come across sites in Dutch about the apple, but also search results about the artist Karel Appel and other namesakes. In other words, you get many results which you don't need. That's because Google reads only text, which is a row of letters without a context. A search engine which uses the knowledge of a particular subject is cleverer. The row of letters will immediately acquire a meaning, which enables the search engine to redirect a question such as: 'Are you searching for the artist or for fruit?'

Nicole Koenderink has developed a knowledge model which taps into the knowledge of experts, and has built this into a search engine. The expert model begins with listing the major concepts in a field, such as 'grape'. Subsequently, the programme searches for 'grape' in existing lists of concepts to find related concepts such as 'viniculture' or 'grapeseed oil'. By approving or rejecting these concepts, the expert model accumulates better and better relevant terms and their inter-relations. These are expressed in layman's terms, which is a big plus, says Koenderink. 'It is much more user-friendly than current methods, and there's demand for this in practice.'

Koenderink graduated yesterday in Delft, but she works at Food & Biobased Research Group of Wageningen UR. Here, she has applied her

expert model - the so-called Reuse-based Ontology Construction - in tomato breeding.

She has looked into how to automate the selection of tomato seedlings. Breeders and growers are very keen to predict at an early stage how many tomatoes a full-grown plant would bear. 'This quality control is currently done by well-trained experts, who, among themselves, differ greatly in their approaches, since there seem to be sixty different criteria used in their selection processes. For example, they look at leaf surface and stem length, and also at the chance that the plant will bear no fruit. I have drawn upon the knowledge and experience which these experts - often unconsciously - have in their heads to come up with a usable knowledge model.'

She has developed a technique in the expert model which combines the selection rules with three dimensional recordings of the seedlings. This technique will be ready for use commercially later this year.

Provided by Wageningen University