

positive or negative example of the user interests.” *Id.* at p. 10. The new hyperlink exists on a page the user is currently viewing and so neither that page nor the hyperlink thereon that is being evaluated is “unseen”, and even if they were, it is the interestingness of the hyperlinks, not the document they are on nor the documents they point to, that is predicted. Accordingly, combining the teachings of *Cullis* and *Mladenic* does not yield the subject matter of claims 1 and 32 (or any of their respective dependent claims) and so the claims are patentable over these references.<sup>29</sup>

**D. Claim 21 is Patentable over *Culliss* in View of *Refuah*.**

Claim 21 depends from claim 1 and is patentable over *Culliss* for all of the reasons set forth above with respect to claim 1.

The ACP relies on *Refuah* for its teachings regarding the use of a user’s “mood” and “persona” to affect web pages provided to the user, and asserts that it “would have been obvious to one skilled in the art [to apply the teachings of *Refuah* to *Culliss*], as it merely would have shifted the location where the document analysis and filtering take place.” As discussed above, this conclusion is unsupported speculation. Moreover, the virtual personas described by *Refuah* are not “derived from [a] User Model” which defines parameters of a learning machine, as required by the present claims. Instead, the virtual personas are either defined through a question and answer session, *Refuah* at col. 22, ll. 15-18, or are selected from a library of pre-defined personas and modified by individual users, *id.* at col. 21, ll. 40-44, or are compiled through the monitoring of user actions on the Internet. *Id.* at col. 21, ll. 22-24. Hence, even if the teachings of *Refuah* were combined with those of *Culliss*, one would not arrive at the presently claimed invention because the interest information would not be derived from a User Model that defines parameters of a learning machine, as claimed.

Furthermore, claim 21 is dependent from claim 1. *Culliss* does not teach a “user model,” which has been construed to mean “an implementation of a learning machine.” In claim 1, step 1c recites the limitation “estimating parameters of a learning machine” and step 1e recites the limitation estimating a probability that an unseen document is of interest to the user by applying the identified properties of the document to the learning machine. *Culliss* describes a basic approach in counting the personal data item score to determine if it has reached a certain

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<sup>29</sup> Further, for the reasons discussed above, one of ordinary skill in the art would not apply the teachings of *Mladenic* to those of *Culliss* as one embraces search and the other does not.

threshold. *Id.* at 4:65–5:2. The counting of personal data item score with a certain threshold is so rudimentary that it does not constitute learning machine<sup>30</sup> capable of generalization.<sup>31</sup>

Accordingly, claim 21 is not obviated by the combination of *Culliss* and *Refuah* because the claim is patentably distinct on its own and through its dependency on claim 1.

**E. Claim 21 is Patentable over *Culliss* in View of *Mladenic* and *Refuah*.**

Claim 21 depends from claim 1 and is patentable over *Culliss* for all of the reasons set forth above with respect to claim 1. All of *Cullis*, *Mladenic* and *Refuah* suffer from a common deficiency—none teaches or suggests “estimating a probability  $P(u|d)$  that an unseen document  $d$  is of interest to the user  $u$ , wherein the probability  $P(u|d)$  is estimated by applying the identified properties of the document to the learning machine having the parameters defined by the User Model” as recited in claim 1, from which claim 21 depends. Accordingly, claim 21 is patentable over this combination of references.

Claim 21 further recites “sending to a third party web server user interest information derived from the User Model, whereby the third party web server may customize its interaction with the user.” By virtue of its dependency, claim 21 is not anticipated by the combination of *Culliss* and *Mladenic*. Further, the ACP does not contend that *Mladenic* teaches the subject matter of claim 21 and instead relies on *Refuah* for such teachings. Immediately above it was shown that this reliance is misplaced. The virtual personas described by *Refuah* are not “derived from [a] User Model” which defines parameters of a learning machine, as required by the present claims. Instead, the virtual personas are either defined through a question and answer session, *Refuah* at col. 22, ll. 15-18, or are selected from a library of pre-defined personas and modified by individual users, *id.* at col. 21, ll. 40-44, or are compiled through the monitoring of user actions on the Internet. *Id.* at col. 21, ll. 22-24. Hence, even if the teachings of *Refuah* were combined with those of *Culliss* and *Mladenic*, one would not arrive at the presently claimed invention because the interest information would not be derived from a User Model that defines parameters of a learning machine, as claimed. Accordingly, claim 21 is not obviated by the combination of *Culliss*, *Mladenic* and *Refuah*.

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<sup>30</sup> Learning is not memorization. Generalization is the ability to produce correct outputs or behavior on previously unseen inputs. “Machine Learning and Pattern Recognition,” Yann Lecun, Spring 2004, Slide 10.

<sup>31</sup> Generalization is the ability of a machine learning algorithm to perform accurately on new, unseen examples after training on a finite data set. The core objective of a learner is to generalize from its experience. Christopher M. Bishop (2006) *Pattern Recognition and Machine Learning*, Springer ISBN 0-387-31073-8.



## VI. CONCLUSION

For at least the foregoing reasons, Patent Owner respectfully submits that the patentability of the claims subject to reexamination now be confirmed over the Mladenic, Wasfi, Refuah, Culliss and Yang.

If there are any fees or credits due in connection with the filing of this Response, the Commissioner is hereby authorized to charge any necessary fees to our Deposit Account No. 19-3140.

Respectfully submitted,

Dated: May 21, 2012

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