

## **Abstract**

### **Identification of user requirements for prosthetic devices by means of text mining in online user fora**

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Identifying user requirements is difficult for manufacturers of prosthetic devices. This is a result from the fitting process happening under doctor-patient-confidentiality, limiting access to amputees for the industrial partner. User needs were thus traditionally derived from experience, by interviewing amputees directly and the involvement of lead users. Product innovations were often also technology driven, making these approaches difficult and limited in their value.

Exploring new avenues to generate insight into (unsolved) user needs is thus a major task for the (prosthetic) industry. This thesis investigated the idea to extract unmet and unknown user needs from relevant online user fora. The underlying hypothesis is that amputees communicate unmet needs as well as unresolved usability issues in online user groups and that text mining can be utilized to identify these needs.

Data from relevant user fora were extracted and analysed by means of commercially available tools. webLyzard was used to identify number of posts and sentiment for defined research questions. Relevant associations were also recorded and analysed. Results were discussed with experts in the field (certified prosthetists, product managers, experienced developers).

The results confirmed existing knowledge about user needs and usability of current prostheses. The results also demonstrated that amputees think in prosthetic systems and not in the components that make up such systems. Finally the results identified several areas of interest that need to be considered in more detail in future product developments.