Guiding Novice Users in Creation of Accessible PDF Documents (Master Thesis)

ACCESS@KIT - Zentrum für digitale Barrierefreiheit und Assistive Technologien

Master's thesis with the goal to develop and evaluate a new interface for our AccessiblePDF platform, with the focus on guiding novice users.

Problem

Blind and visually impaired users can read documents, e.g. PDFs, via screen readers (text-to-speech) or refreshable braille displays. However, for many such documents, this requires making them accessible beforehand. Such a process is supported by many well-known PDF tools, foremost Adobe's Acrobat Pro. While other, more specialised, solutions exist (Axes PDF, PAVE, ...), they seem to lack a regard for guiding novice users through this frustrating and error-prone process. However, the availability of accessible literature is crucial e.g. for blind and low-vision students, as they need learning material readable by their means. This thesis should contribute not only to science, by investigating means of guidance and better interaction in this context, but also to the societal objective of inclusion. With the final goal to have an interactive, efficient and targeted tool with AI support to guide a user easily and directly to accessible documents. (The AI backframe is currently being implemented by the ACCESS@KIT).

Goals

1. Identification of the state-of-the-art process when creating accessible PDF documents, e.g. with tools like AxesPDF, PAVE, or Adobe Acrobat Pro.

2. Requirements elicitation based on this process, focusing on shortcomings with regard to novice users.

3. Development of a new document labeling interface, especially regarding the reading order annotation, building upon our existing AccessiblePDF platform.

4. Evaluation of said interface with a user study. Both quantitative and qualitative methods should be applied here, i.e. measuring time needed to annotate and accuracy, following up with interviews.

Requirements

The applying student is expected to be familiar with web development based on the React framework. They will be expected to integrate their work into an in-development application, building upon the existing state-of-the-art.

Contact

If you are interested in this topic and want to apply for this thesis, please contact Dr. Thorsten Schwarz (thorsten.schwarz@kit.edu) or Merlin Knäble (merlin.knaeble@kit.edu) with a short motivation statement, your CV, and a current transcript of records. Feel free to reach out beforehand if you have any questions.