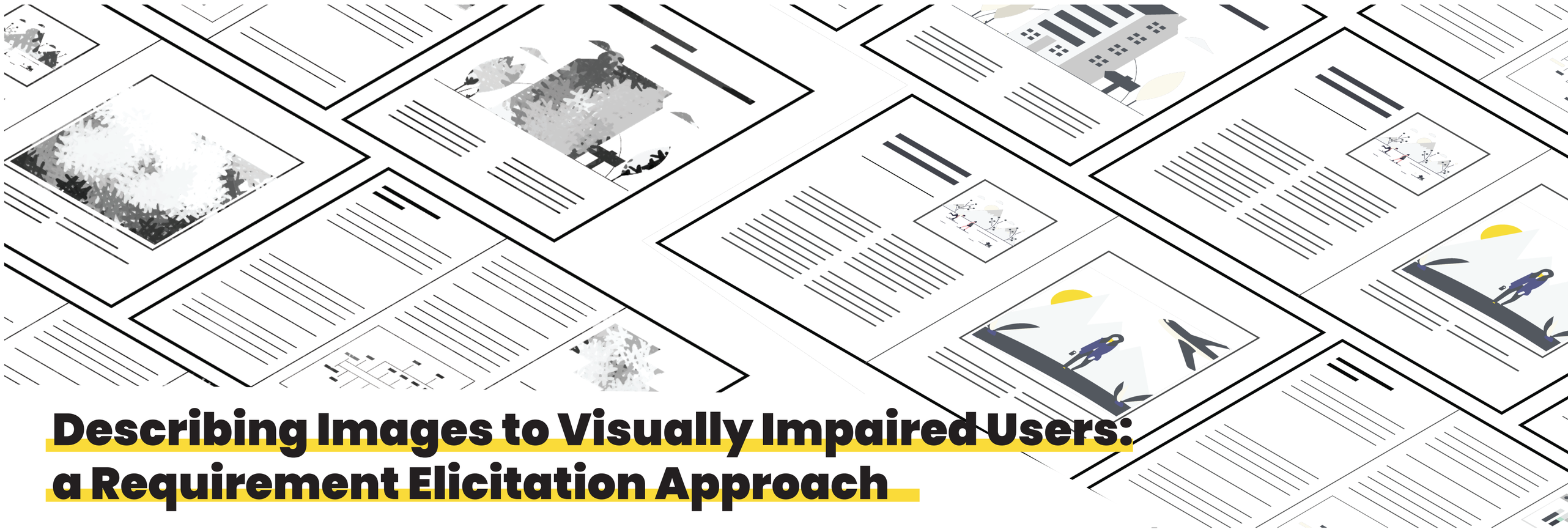


Describing Images to Visually Impaired Users: a Requirement Elicitation Approach

Introduction

Visually impaired people need image descriptions

Images are becoming a more prominent part of today's media. But have you ever wondered how visually impaired people use Instagram, Facebook or read books like people with normal sights? They need image description(ID) to transform visual content into a way that they can assume.

Lack of solution to produce image description cost-efficiently

Providing image descriptions will be a legal obligation in the near future. According to the European Accessibility Act, all new digital publications and services should be made accessible from 2025. But currently, we still lack a feasible solution to equip digital publications with image descriptions.

Human in the loop approach provides the opportuinity

Fortunately, recent experiments with the human in the loop approaches (HITL) show possibilities to tackle this problem. The development of crowdsourcing systems and AI captioning systems demonstrate their potential to produce image descriptions efficiently on a larger scale.

But we need to first learn about visually impaired people's needs

Therefore, focusing on the requirements of visually impaired people, the goal of this thesis is to elicit new knowledge and design an image description system, which can both facilitate the production of ID and satisfy the needs of visually impaired people.

Key stakeholders and elements

* Left 3 icons are not made by my own

Design goal

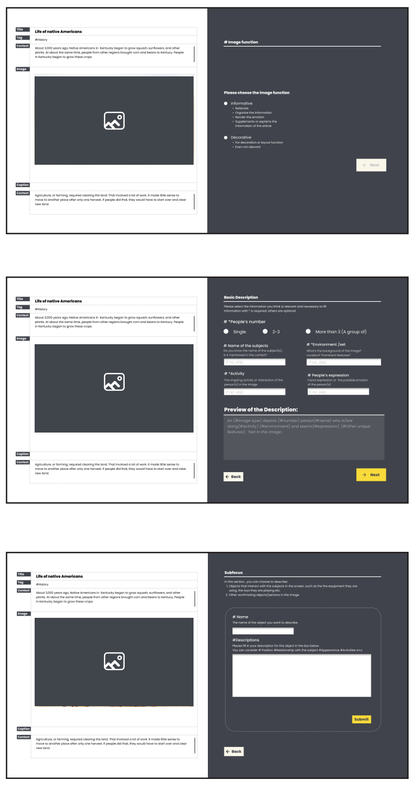
To develop a system which enables visually impaired people to have control on their image description and is able to collect their require ments that can be transformed into straightforward description tasks for crowd workers

Project Outcome

A prototype is developed to verify this proposal. Through a comparative experiment, the systems' function to collect user preferences and gradually improve the content of image description is confirmed. In addition, the qualitative research results also reveal the mental activities when users interacting with image description and the impact of interactive image description in this procedure, which is summarized as an image perception model. It is also argued that structured description and progressive description provide new perspectives to reduce the workload of describing images. A final design was developed as the demonstrator for the research findings and proposals.

Main Project Outcome

Interfaces for crowd workers



Framework for interactive image description (IID) system

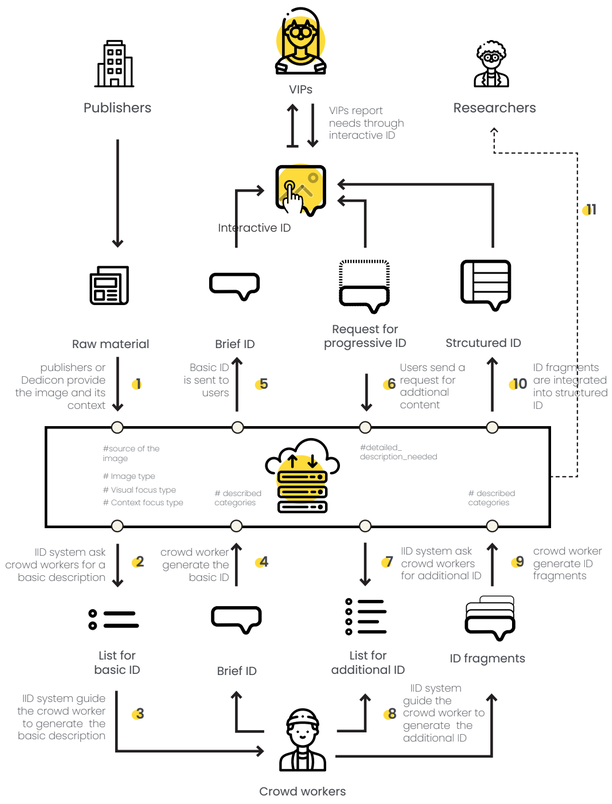
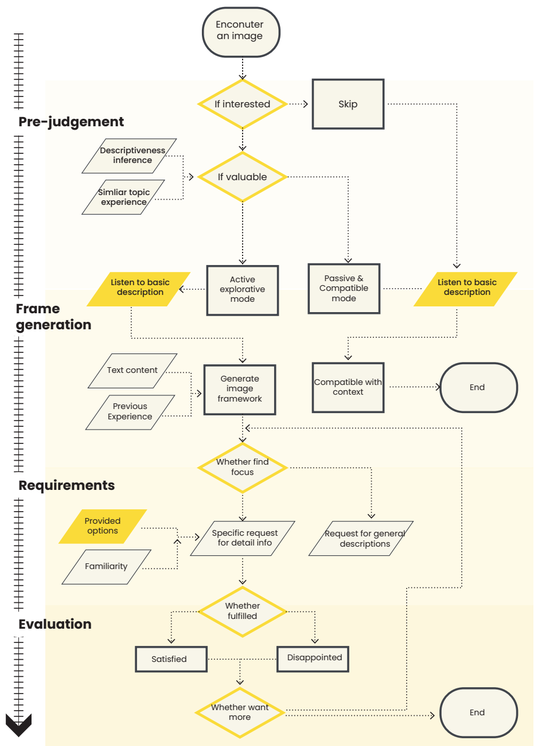


Image perception Model



Interfaces for viusally impaired people

Yuxin Chu

Describing Images to Visually Impaired Users: a Requirement Elicitation Approach

31/05/2021

Msc Design for Interaction

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