Master Thesis Problem Statement

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Academic Goals

I wish to write this thesis on integrating computer vision into a client-server architecture, where the image data is generated by the client, but processed by the server. Such a solution could be useful in a software system which has its frontend running on a low powered AR glass. The academic goals of such a thesis could be to examine both the technical and the economical feasibility of developing such a system.

Practical Goals

This thesis is done with the intent of using its output in a future business operation. I am currently involved in a startup that aims to create an AI assistant tool for laboratory work that will work with an AR-based UI. The practical goals for this thesis would be to develop the parts of this software that serve the academic goals. They will later be used for a commercial purpose.

Research Questions (2-4)

Given a software system where video gets captured on an AR-glass, gets sent to a server for analysis with computer vision tools, and gets sent back to an AR UI

RQ1: What are the technological bottlenecks in the implementation of such a system?

RQ2: How usable is the system in terms of

a) battery time?

b) Latencies?

c) (General user experience?)

RQ3: Could such a solution be scaled economically?

Research Methodology

- A Literature Review of similar projects with the aim of uncovering challenges other people had when building similar projects
- An example implementation of a software architecture that meets the goals with a focus on the problem points uncovered by the literature review
    - An analysis of the completed system (measuring battery time, latency, etc)
- A Cost-Benefit analysis to study economical feasibility