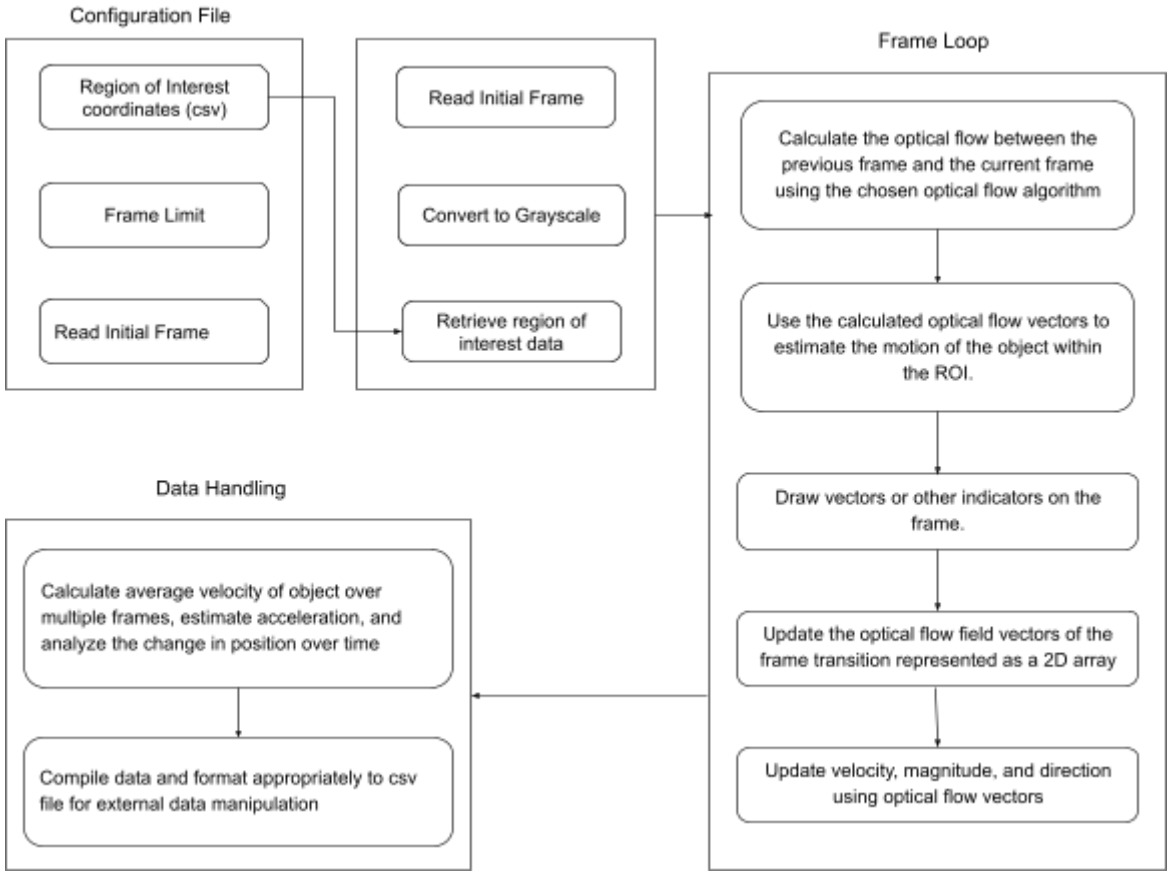
In-Vitro Experimentation - Optical Flow

Progress Report

This report highlights the progress made on our project involving the application of optical flow analysis to in vitro experimentations. Over the reporting period, we accomplished several key milestones and successfully set up the necessary infrastructure for collaborative development.

We documented a high-level description of the system for performing optical flow analysis on in vitro experimentations. This documentation provides an overview of the methods, algorithms, and techniques we will employ to extract meaningful information from the experimental videos.



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To facilitate collaborative work, we created a GitHub workspace where we can easily share and synchronize our code. This platform allows us to push updates, review changes, and track the project's progress effectively. The Github Workspace can be found by visiting: https://github.com/nyameaama/Optical-Flow

OpenCV for C++ was installed on both computers, ensuring that we have a common development environment. This step was crucial for implementing and testing the optical flow algorithms efficiently.

To optimize our workflow, we divided the tasks between the team members. Each of us has been assigned specific responsibilities to ensure efficient progress. By working in parallel, we aim to expedite the development process and meet our deadline successfully. Below is

Section	Status	Assigned to
1. Read region of interest coordinates from a CSV file. 2. Read the first frame of the video or capture an initial image from the camera. 3. Convert the frame to grayscale. 4. Define the region of interest (ROI) around the object to track. 5. Once the object tracking is completed, export the data (such as ROI coordinates, velocity, etc.) to a CSV file.	In progress	Nyameaama
5. Initialize the optical flow algorithm and choose the appropriate algorithm based on requirements. 6. For each subsequent frame:	In progress	Christian

Section	Status	Assigned to
• Convert the frame to grayscale. • Calculate the optical flow between the previous frame and the current frame using the chosen optical flow algorithm. • Use the calculated optical flow vectors to estimate the motion of the object within the ROI. • Optionally, visualize the optical flow by drawing vectors or other indicators on the frame. • Update the ROI position based on the estimated motion.		
7. Coordinate to ensure a smooth transition between frames and communication if any issues or adjustments are needed during the process.	In progress	Both

Initial additions of the code have already been pushed to the GitHub repository. This code provides a foundation for implementing the optical flow algorithms and will be continuously updated as we make progress.

Lastly, we are pleased to report that the optical flow task is on schedule for the June 5 deadline. With a well-defined plan, synchronized efforts, and access to necessary resources, we are confident in achieving our objectives within the specified timeframe.

Overall, the project is progressing smoothly, and we are excited about the potential impact of our work in advancing the understanding of in vitro experimentations through optical flow analysis.