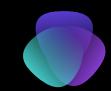




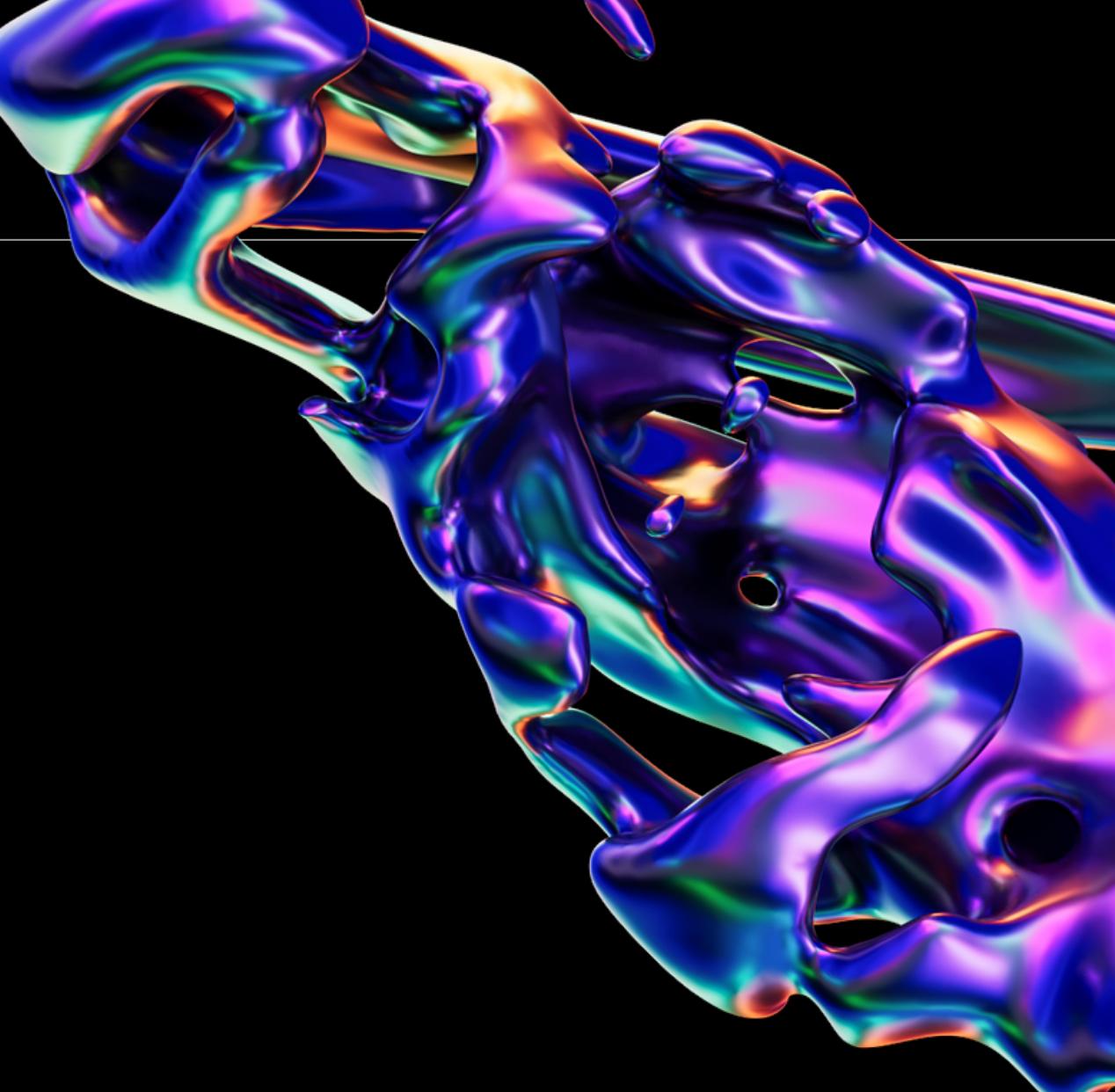
Video object tracking using FlowNet

AUBERT Morgane
KACIAVA BOMBARDELLI Rogerio
SZAPIRO Alex



content

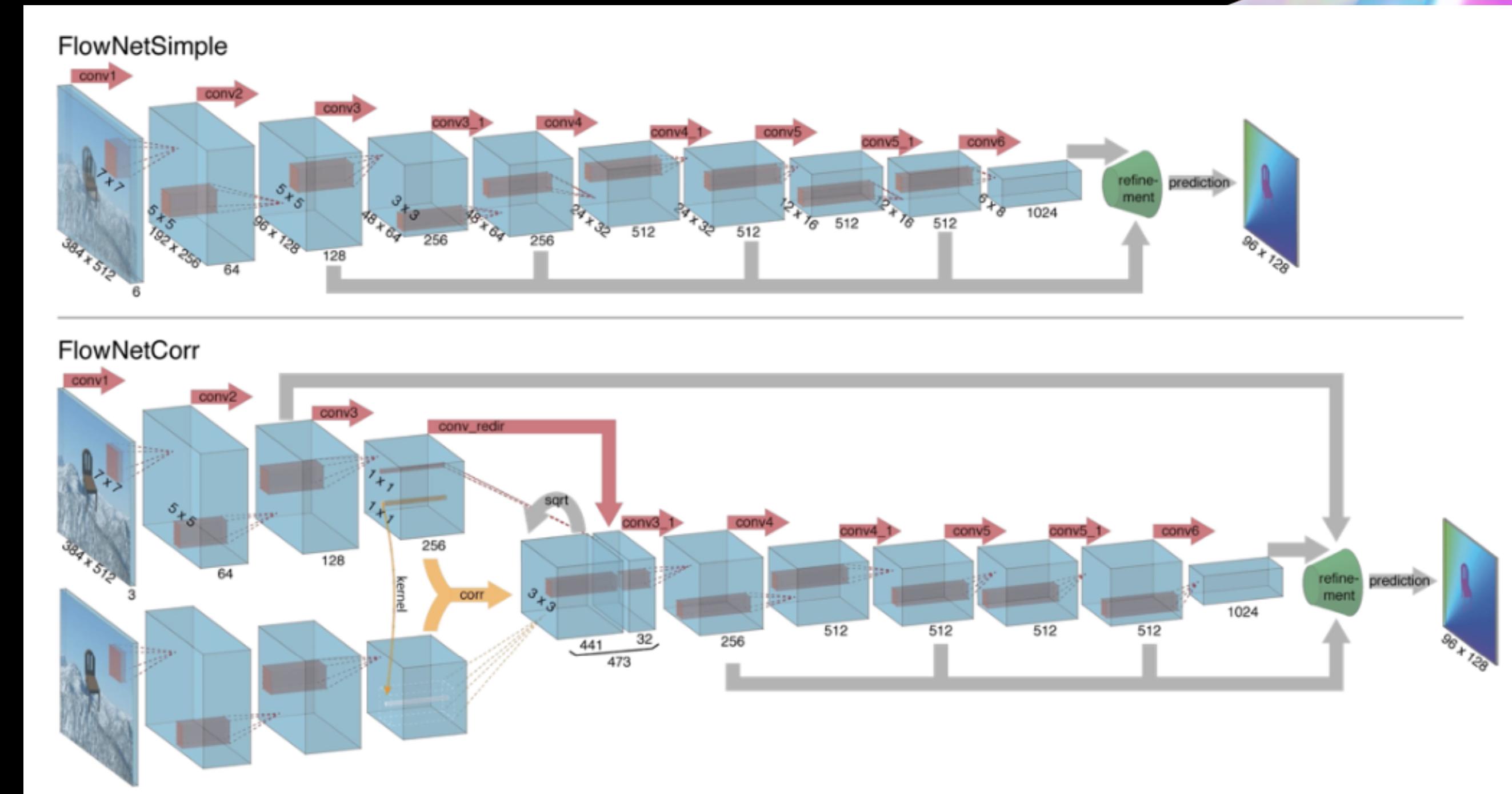
- CONTEXT / PAPER
- OUR PROJECT
- SEQUENCIAL APPROACH
- DIRECT APPROACH
- RESULTS
- CONCLUSION





I - Context

FlowNet: Learning Optical Flow with Convolutional Networks - Dosovitskiy et al. (2015)

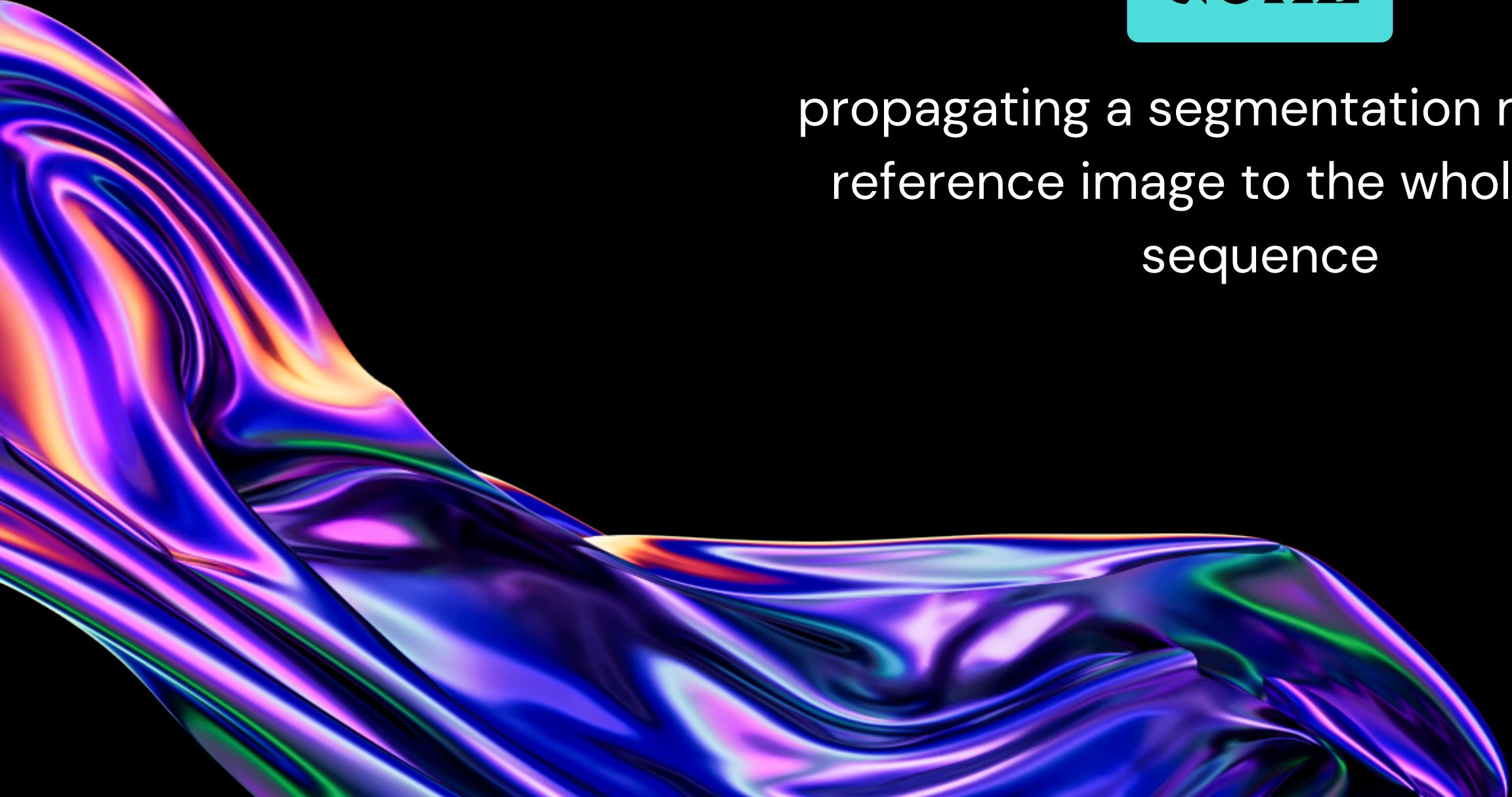




III - Our project

GOAL

propagating a segmentation mask in a
reference image to the whole video
sequence





III – Direct & sequential approach

direct approach

- making predictions or estimations directly between pairs of consecutive frames
- predicts the motion of pixels or features from one frame to the next without considering information from frames other than the immediately preceding one
- direct inference methods are computationally efficient and suitable for scenarios where only immediate temporal information is required

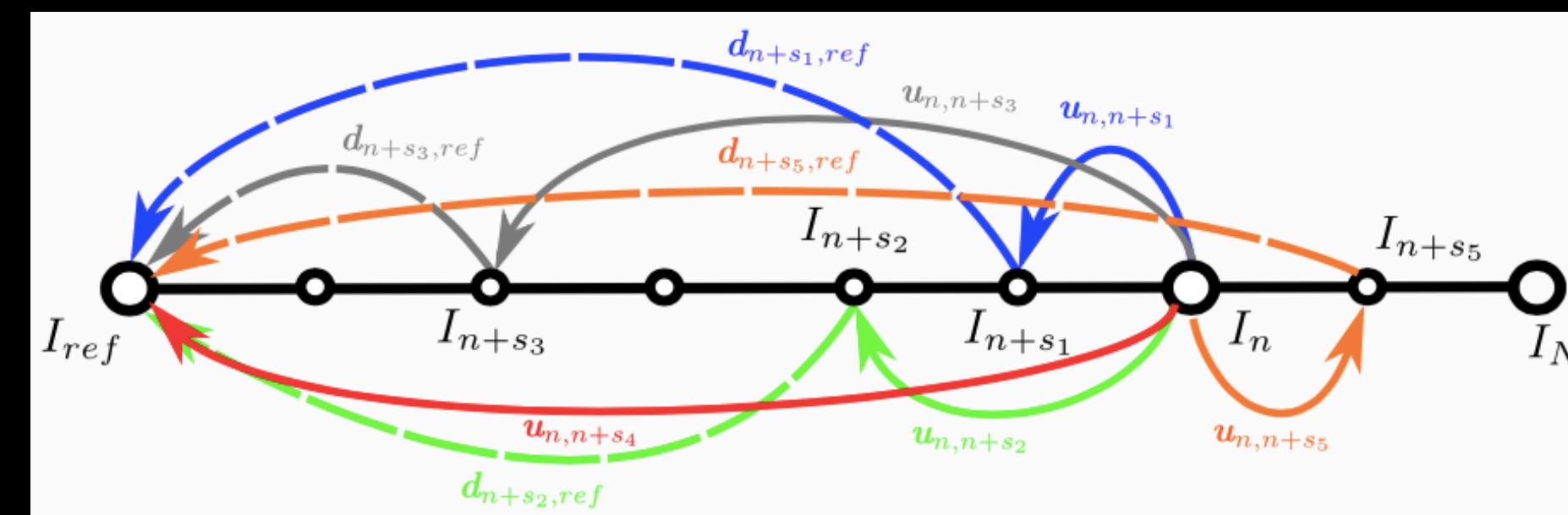
sequential approach

- utilizes information from multiple consecutive frames in the video sequence
- analyzes a sequence of frames to estimate motion, considering the motion history and temporal context
 - enhance tracking performance, handle occlusions, and maintain track continuity over time
- improve accuracy and robustness, especially in challenging scenarios with occlusions or complex motion.
- require more computational resources compared to direct inference due to the analysis of multiple frames

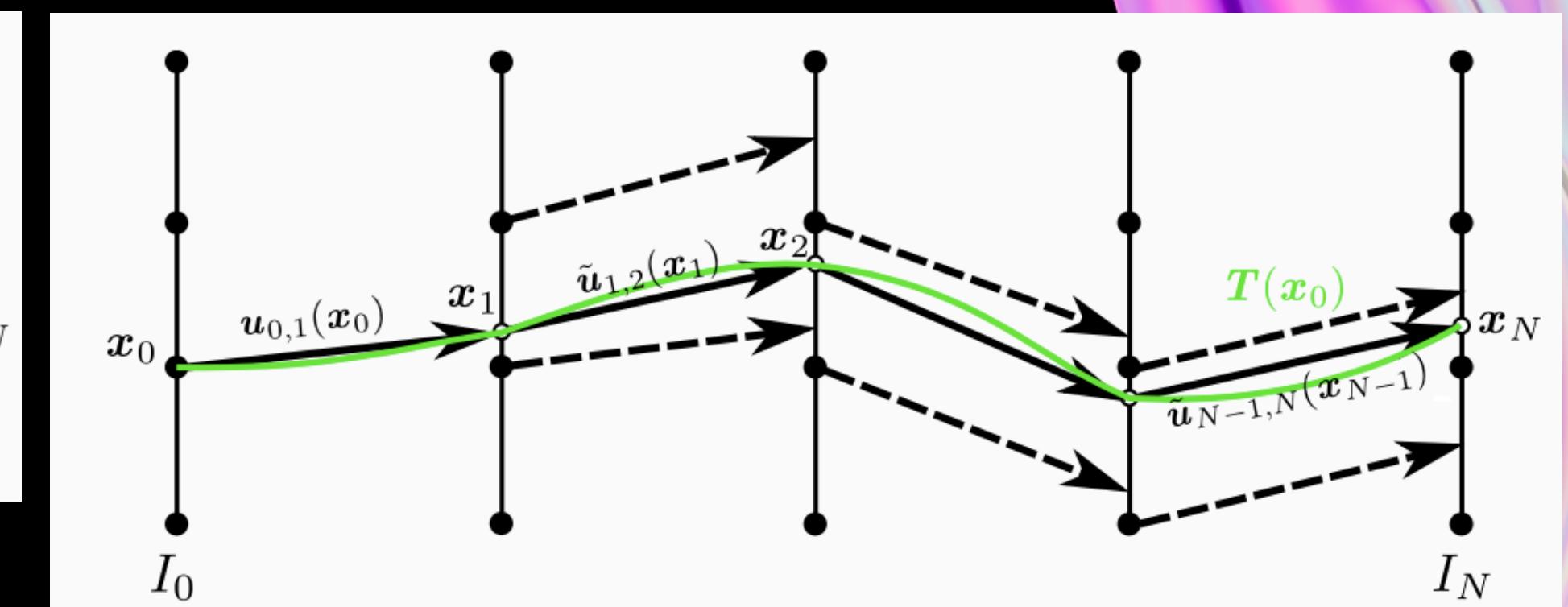


III – Direct & sequential approach

direct approach



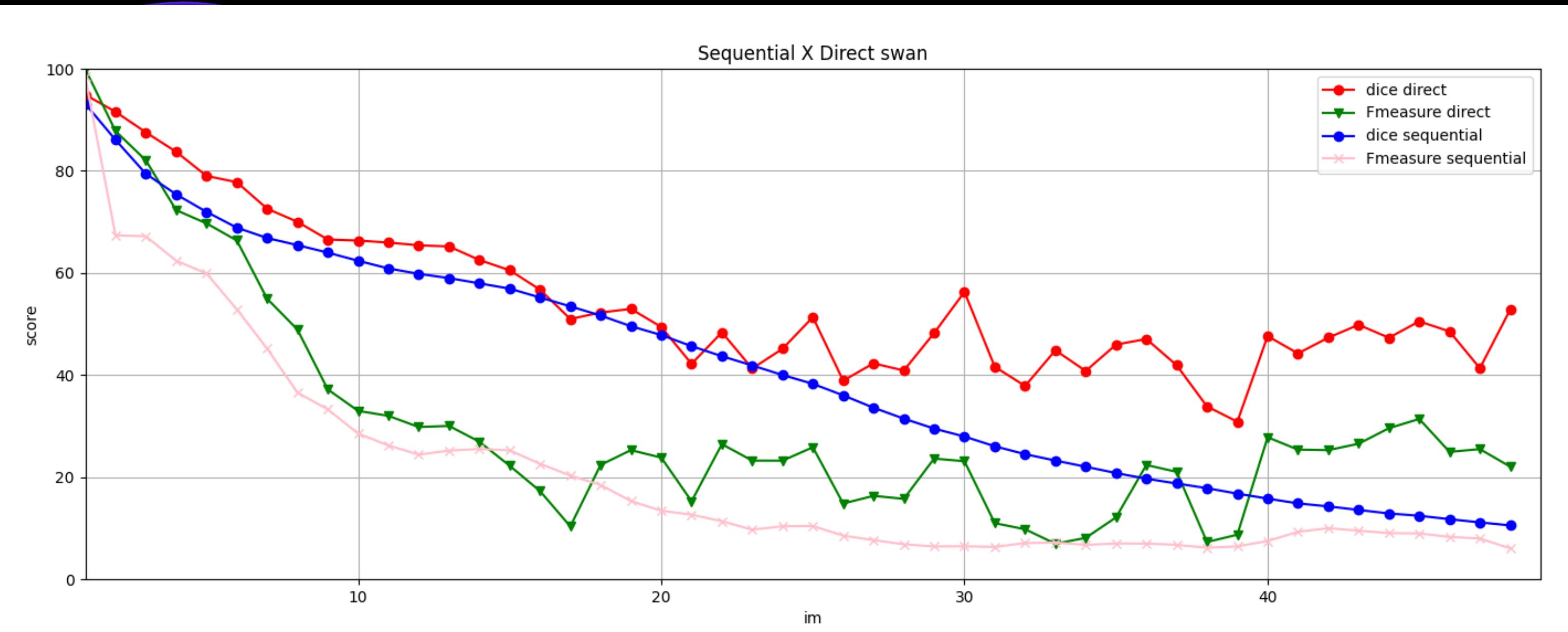
sequential approach





IV – Results

– swan

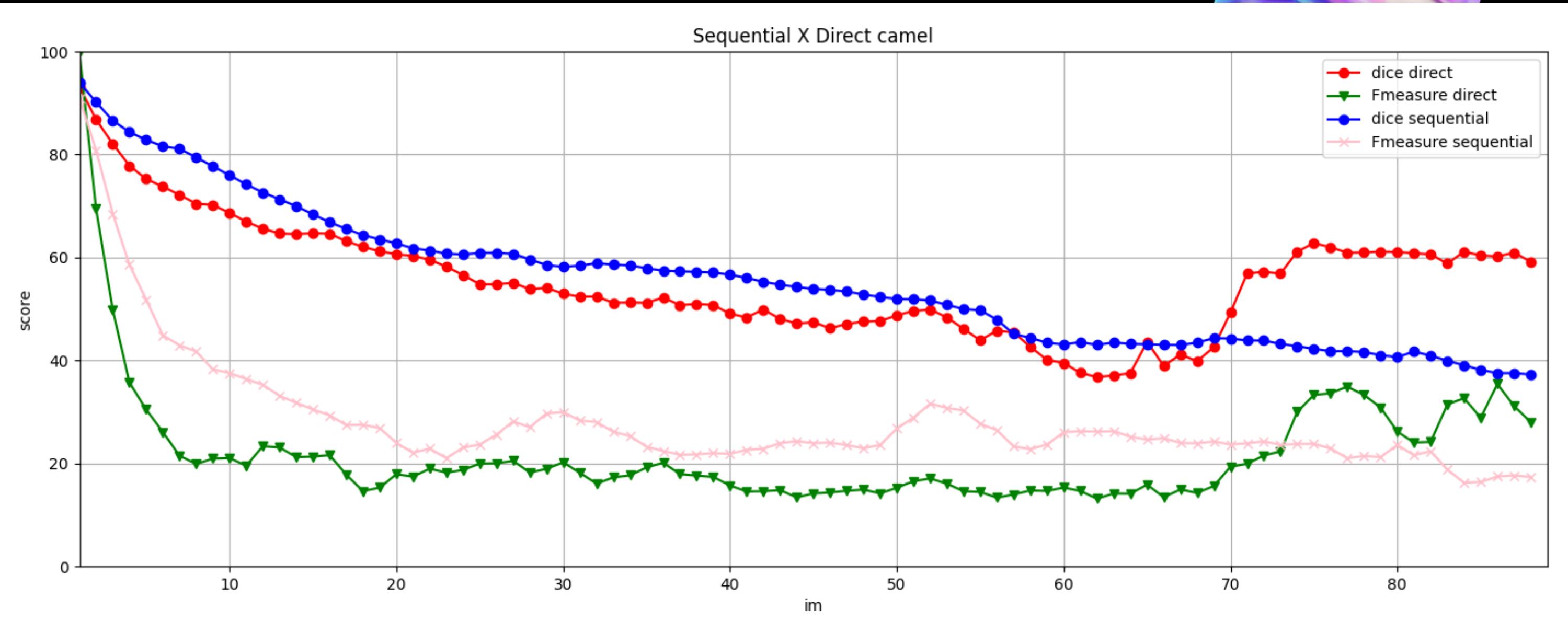




IV – Results

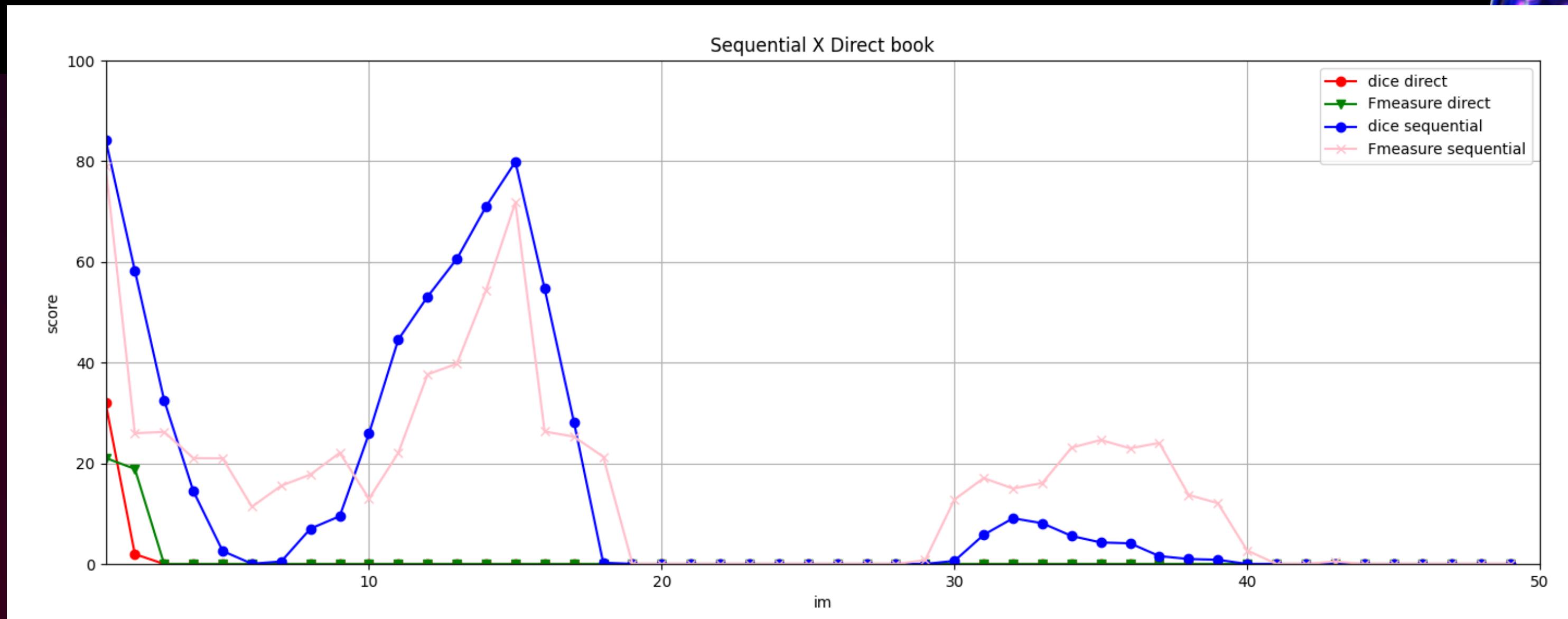
– camel

Sequential X Direct camel



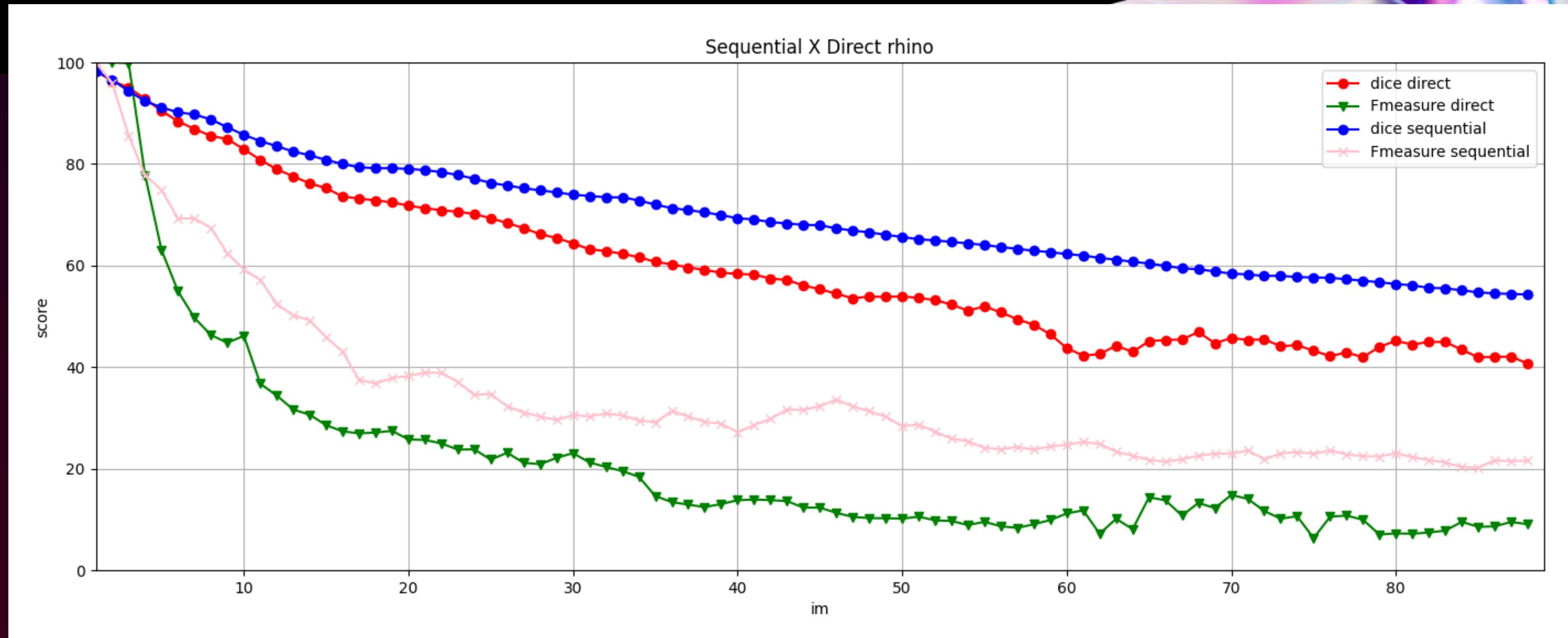


IV – Results book





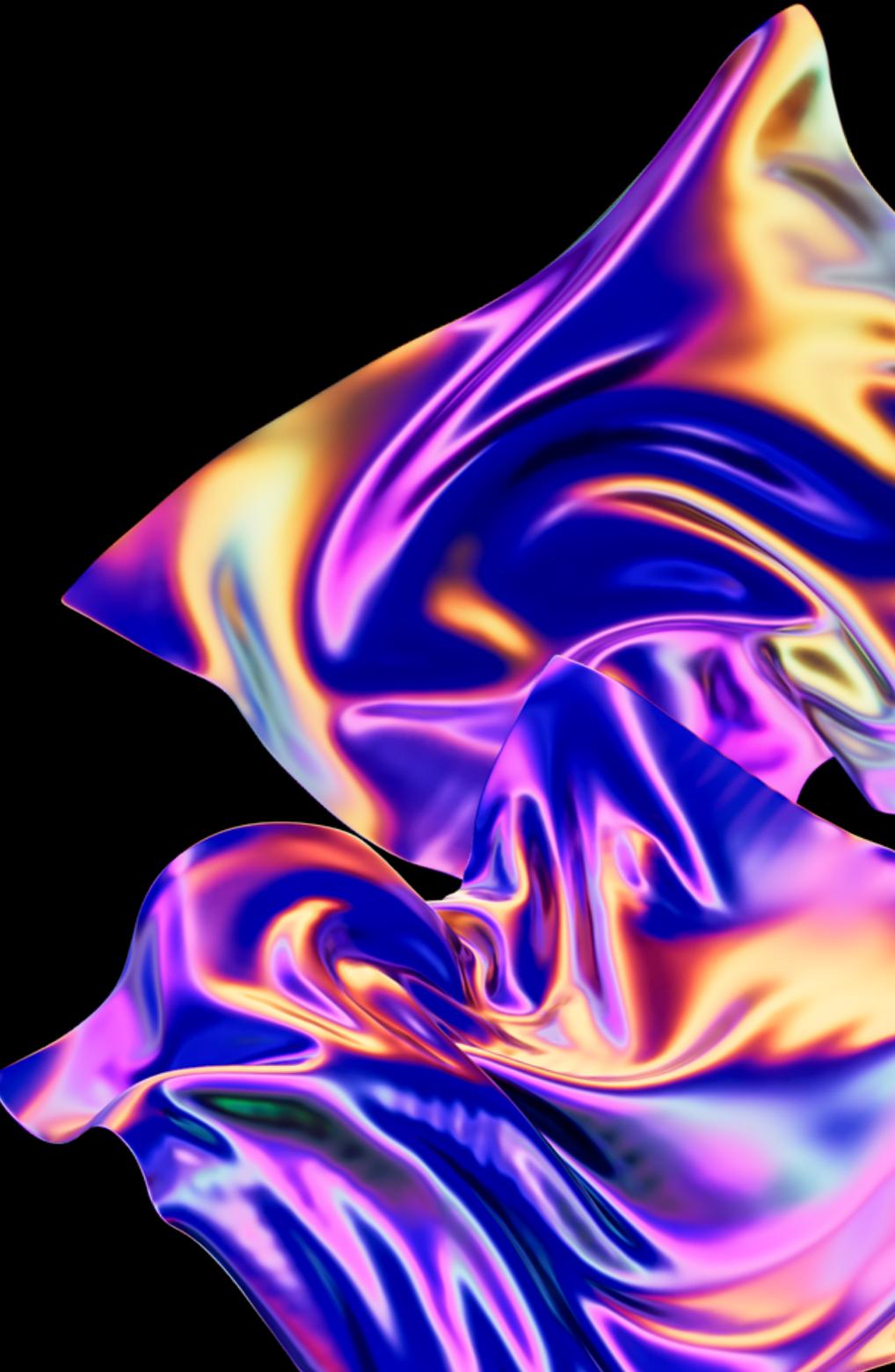
IV – Results – rhino

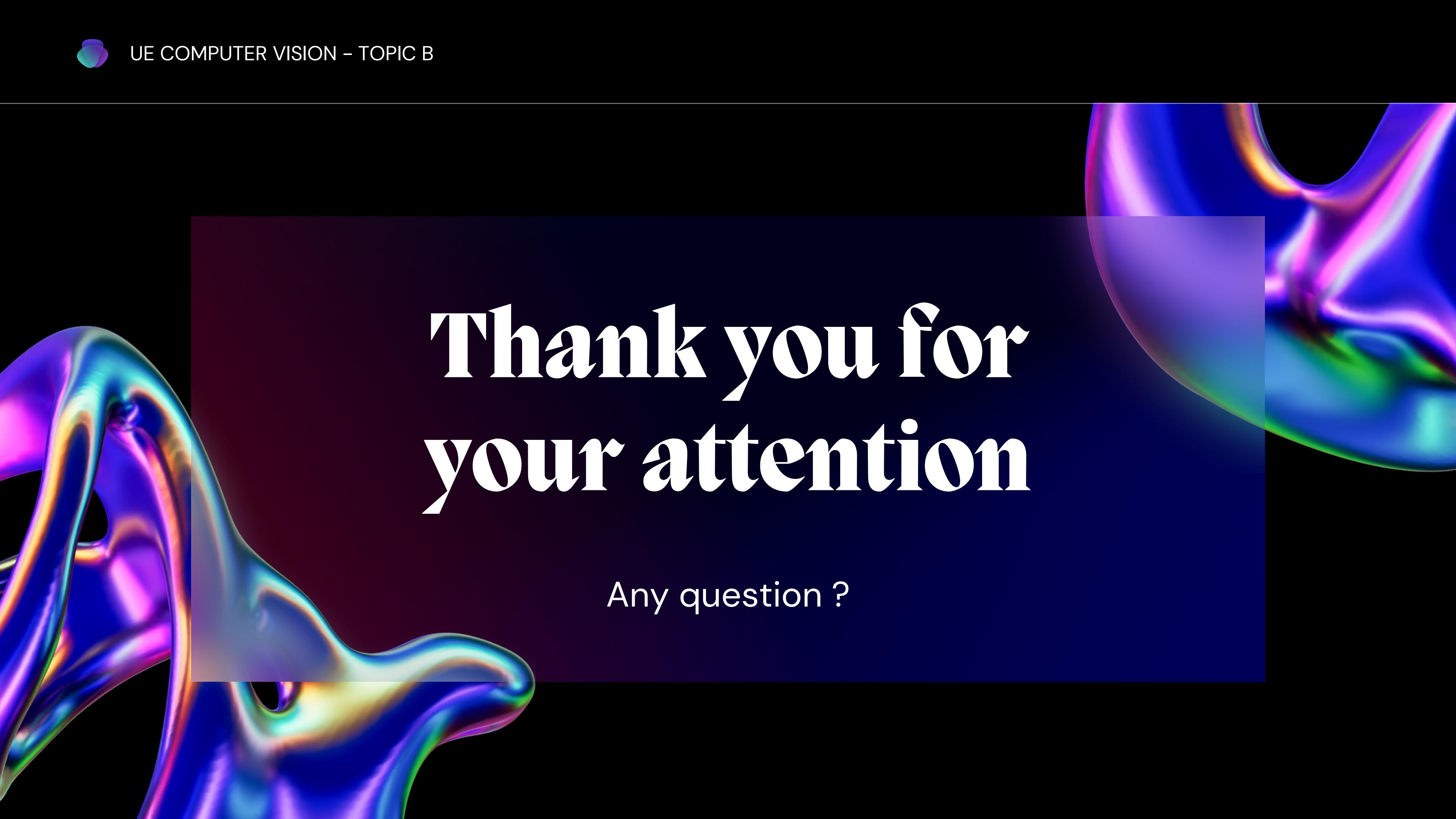
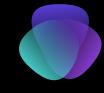




V - Conclusion

- Depending on the case, the sequential or the direct approach works better.
- The sequential allows to track objects even with occlusions and provides more texture.
- The camera movements are not well taken into account





Thank you for your attention

Any question ?