SE-B-13

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SCE
SHAMOON COLLEGE OF ENGINEERING

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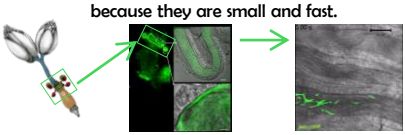
Software Engineering

System for Tracking Sperm Movement in Drosophila Flies

Fruit fly
Drosophila melanogaster

Introduction

Drosophila is a model for fertility research due to its similarity to the human reproductive system. Tracking sperm cells in the spermatheca is challenging because they are small and fast.



Goals

Split the video Into frames and enhance contrast

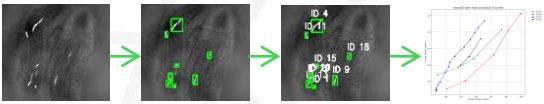
Detect sperm cells in the video frames

Track sperm movement over time

Analyze speed, Direction, and movement patterns

Experimental & Result

- ✓ Importing the video, splitting it into frames, and enhancing contrast using OPENCV.
- ✓ Training a YOLOv8 model to detect sperm cells.
- ✓ Tracking sperm cells using Euclidean distance between frames.
- ✓ Exporting results to a CSV file and a labeled video with TrackID.



Conclusions

Our system enables automated sperm detection and tracking in Drosophila.
The detection model achieved: