Team Hall

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Techniques Implemented

1. Optical Flow
2. Variance
3. Unet

Optical Flow

1 First Two

2. Step size of 8

3. Step size of 4

4. Full

5. With image processing operators such as sobel, roberts, prewitt, kirsch

Optical Flow

Method of Image	IOU Accuracy
Merge 100 frames into 1 image	11.6
First 2 frames	12.4
Step-wise	13.0
All 100 frames	21.2
Sobel Operator with all 100 frames	0.8

Variance

1. Calculated Variance, used thresholding to separate cilia.
2. Calculated Variance, mean and standard deviation of this new image. Set the values one standard deviation above mean as cilia.

Fluctuation Variance

scale	hop	threshold		IOU Accuracy
2	4	10		17.1
3	4	10		18
3	1	5		18.2
2	8	10		16.6
2	8	Mean+ 1 S.D(Standard Deviation)		19.5 (Approach 2)

Unet

1. Preprocessed the images and train the model.
2. Merge the images with variance and train the model.
3. Merge optical flow and variance and train the model.

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Unet

Unet Type	Variance weight	optical weight		IOU Accuracy
Multi	0	0		9.3
Binary	0	0		15.5
Binary	0.2	0.2		5.
Binary	0.2	0		17.2
Binary	1.0	0		8.4

Accuracy

Highest 21%

Lowest 0.8 %