

# MYOTUBE DETECTION MODEL

# OUR TEAM



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# INTRO

A myotube is an elongated, multinucleated cell that forms during the early stages of muscle development.

The task of identifying myotubes during the process of myogenesis is key to achieving the desired result to Dr. K's research.



# MAIN CHALLENGES



## TIME

One key challenge is the significant time consumption involved in manually detecting myotubes.

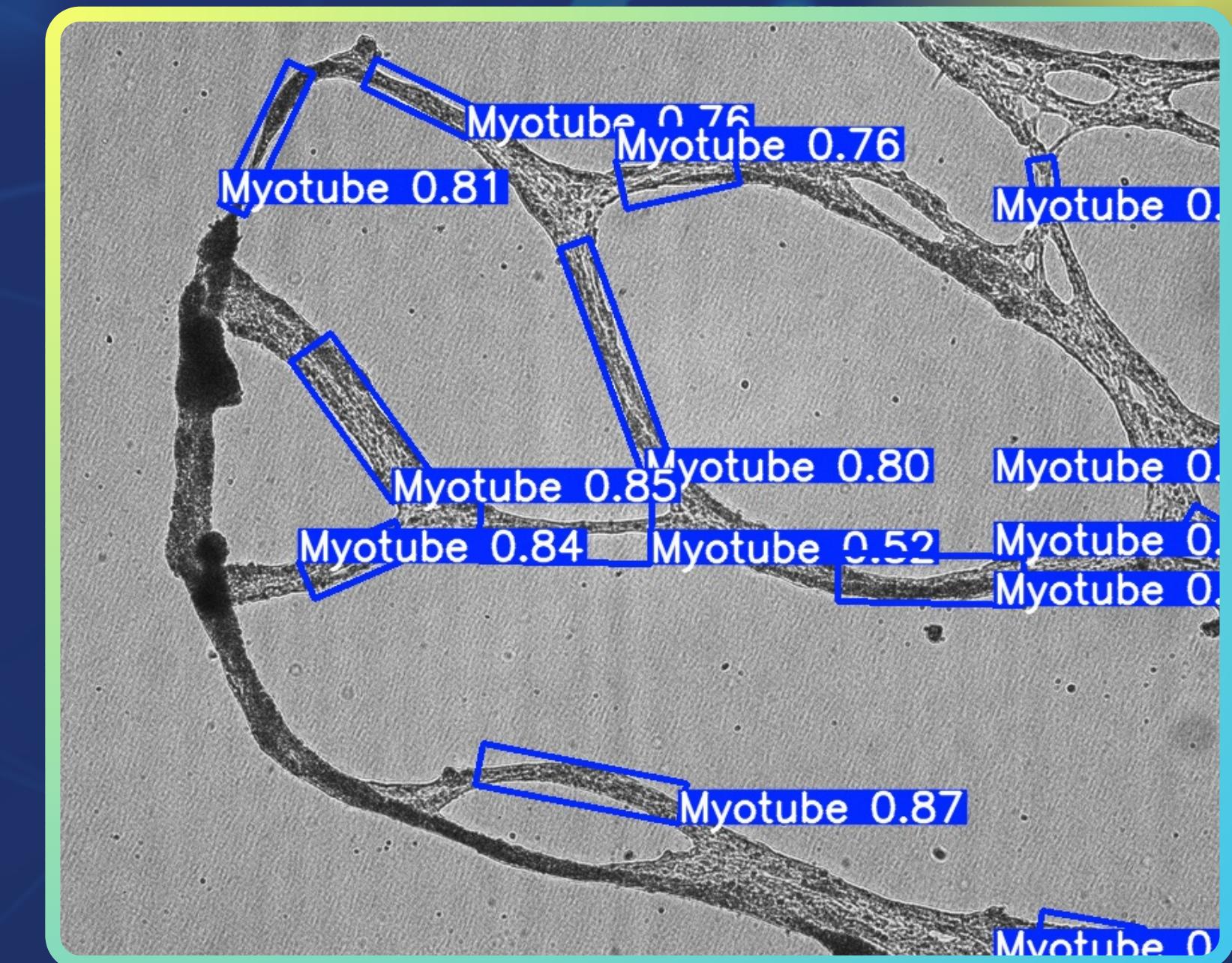


## INCONSISTENCY

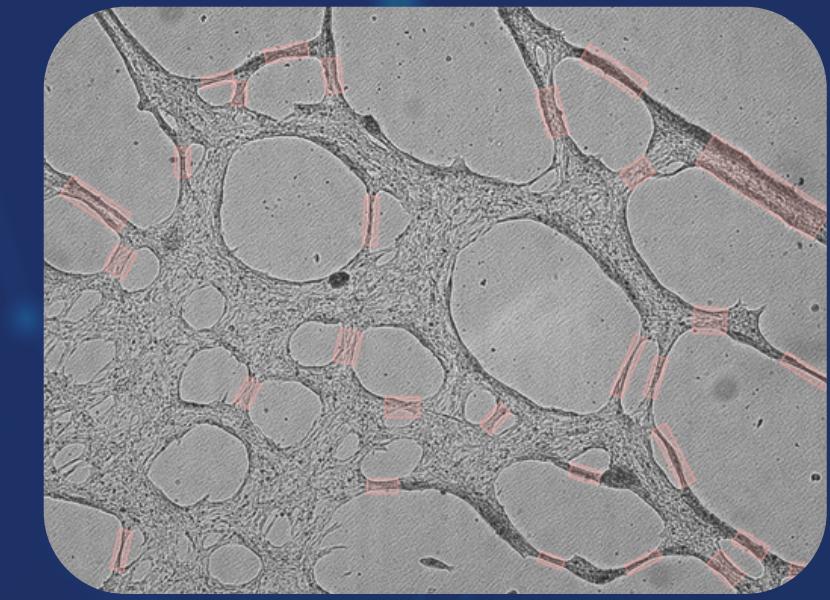
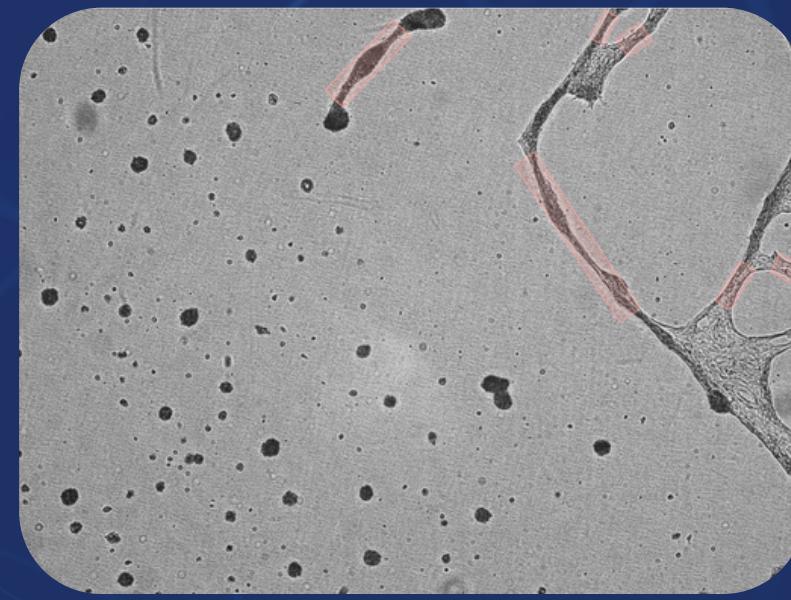
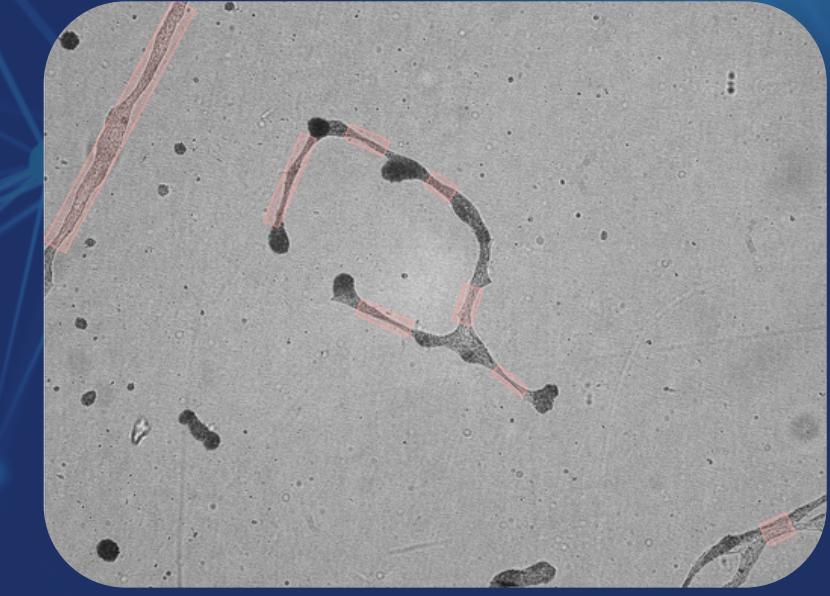
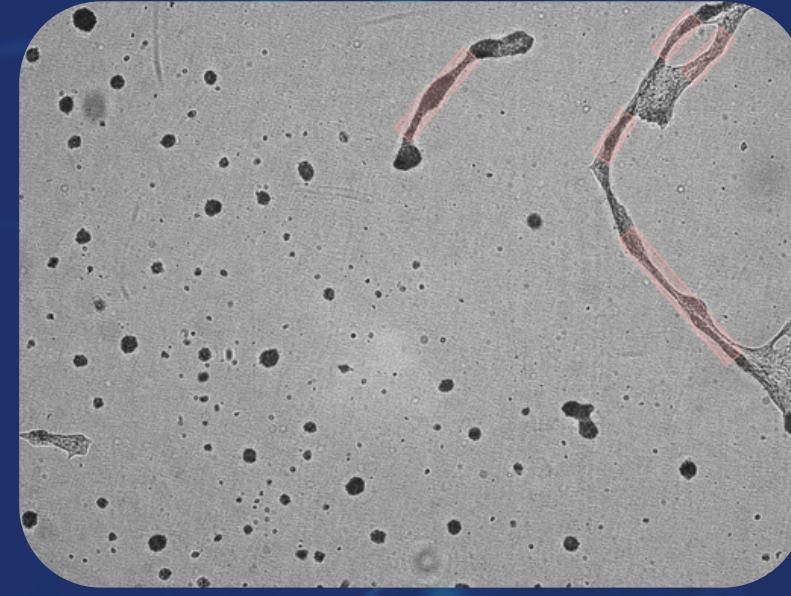
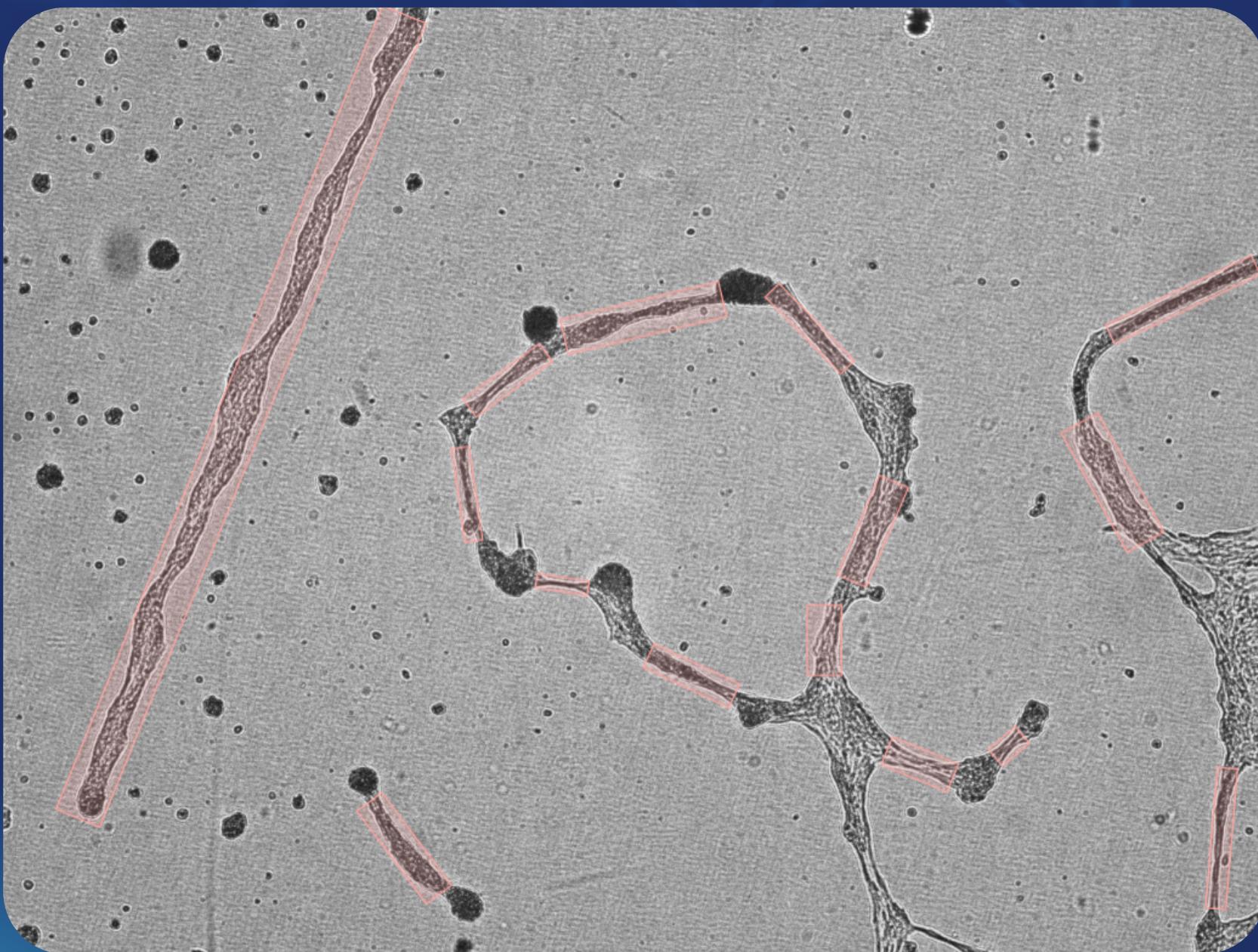
Another is the inherent bias in manual detection, leading to inconsistencies and reduced reliability in the analysis.

# SOLUTION

## AUTOMATIC MYOTUBE DETECTION MODEL

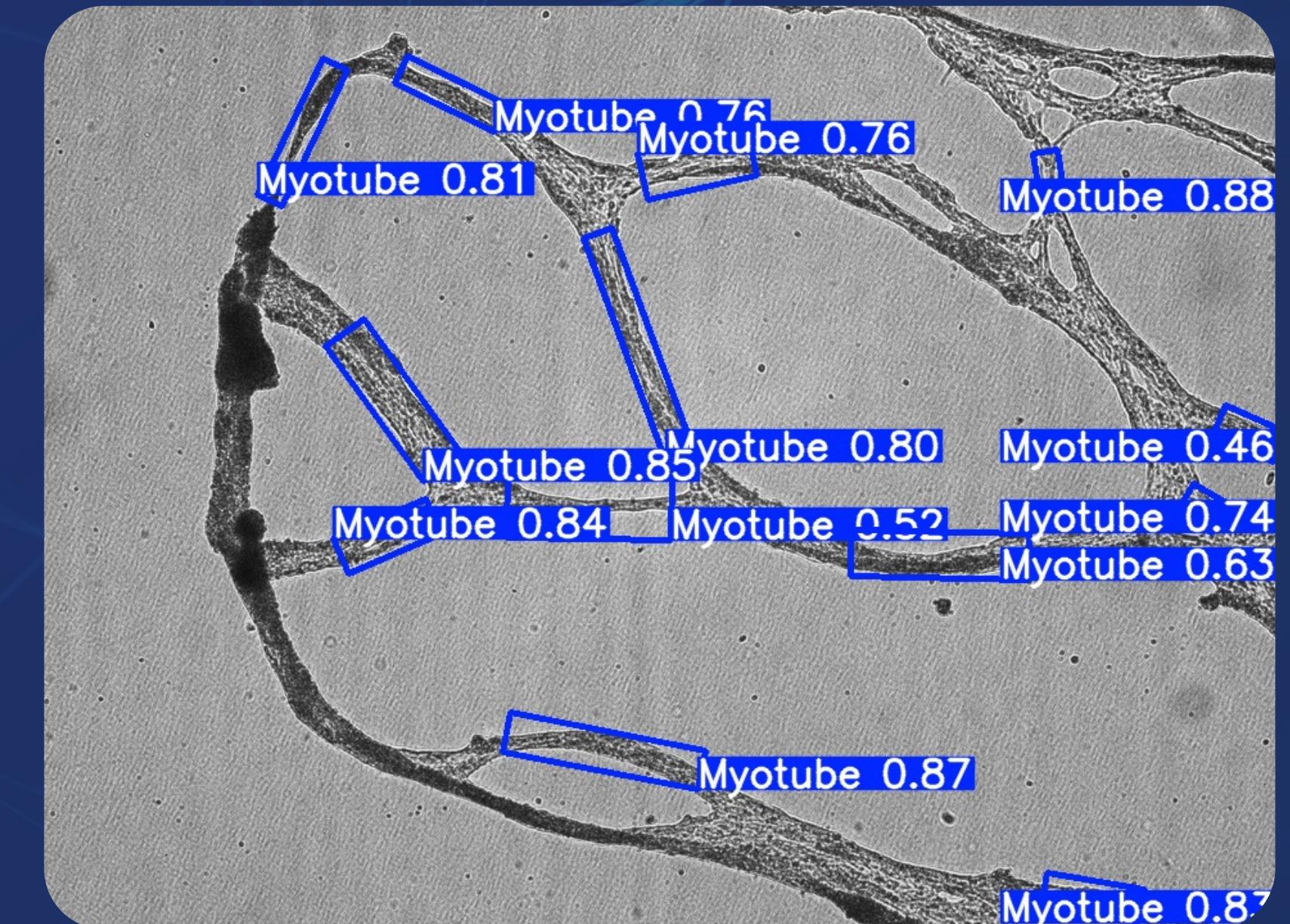
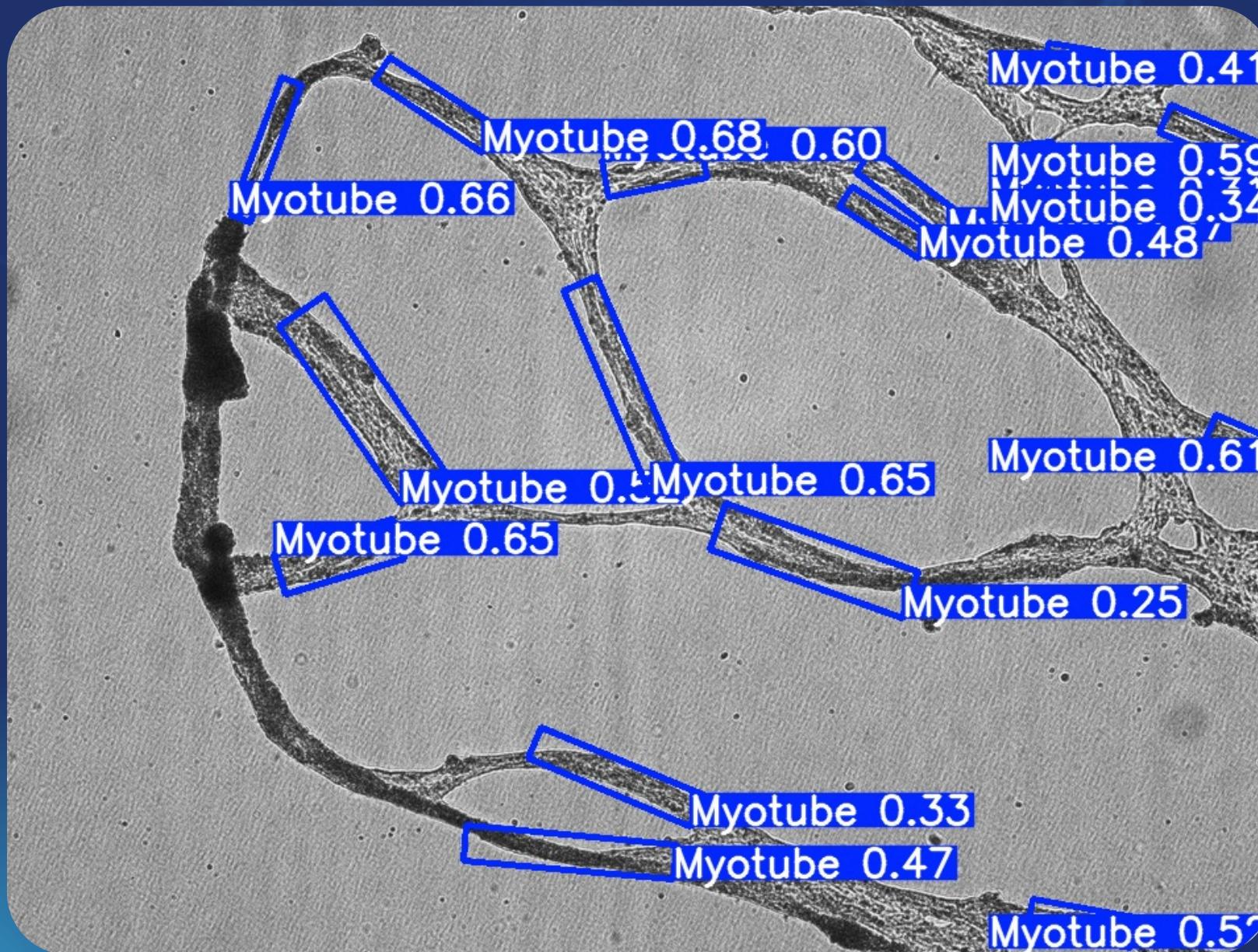


# SOLUTION (MANUAL LABELLING)

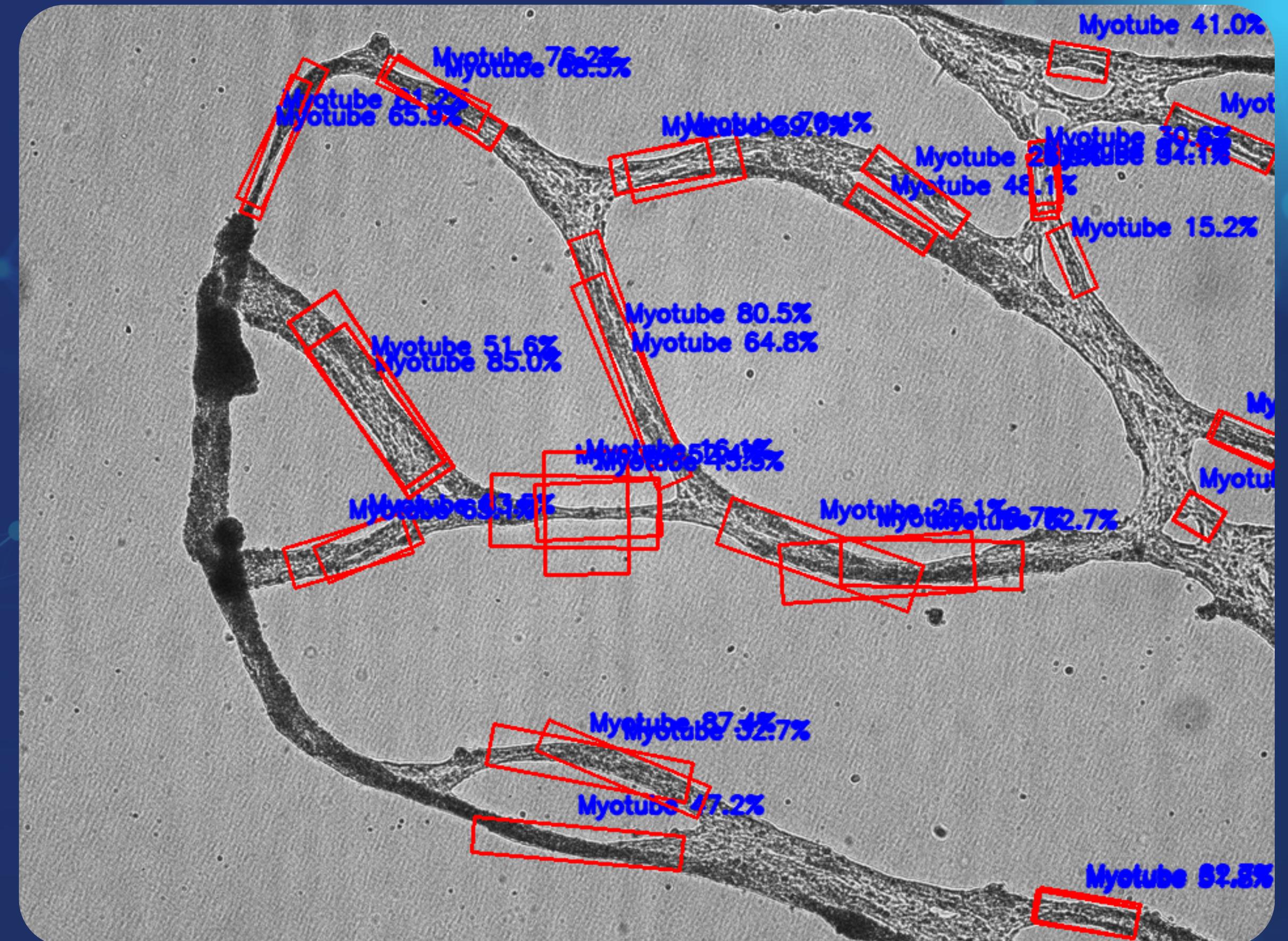


# SOLUTION (TRAIN MODELS)

Model	yolov8-obb			yolo11-obb	
	nano	small	medium	nano	small
Epoch	1000	1000	1000	1000	1000
	3000	3000	3000	3000	3000

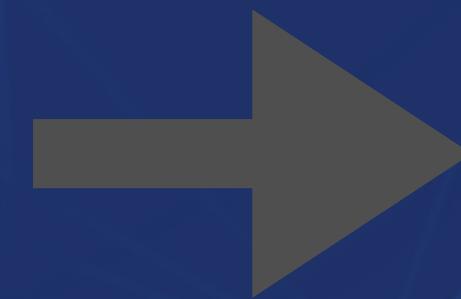
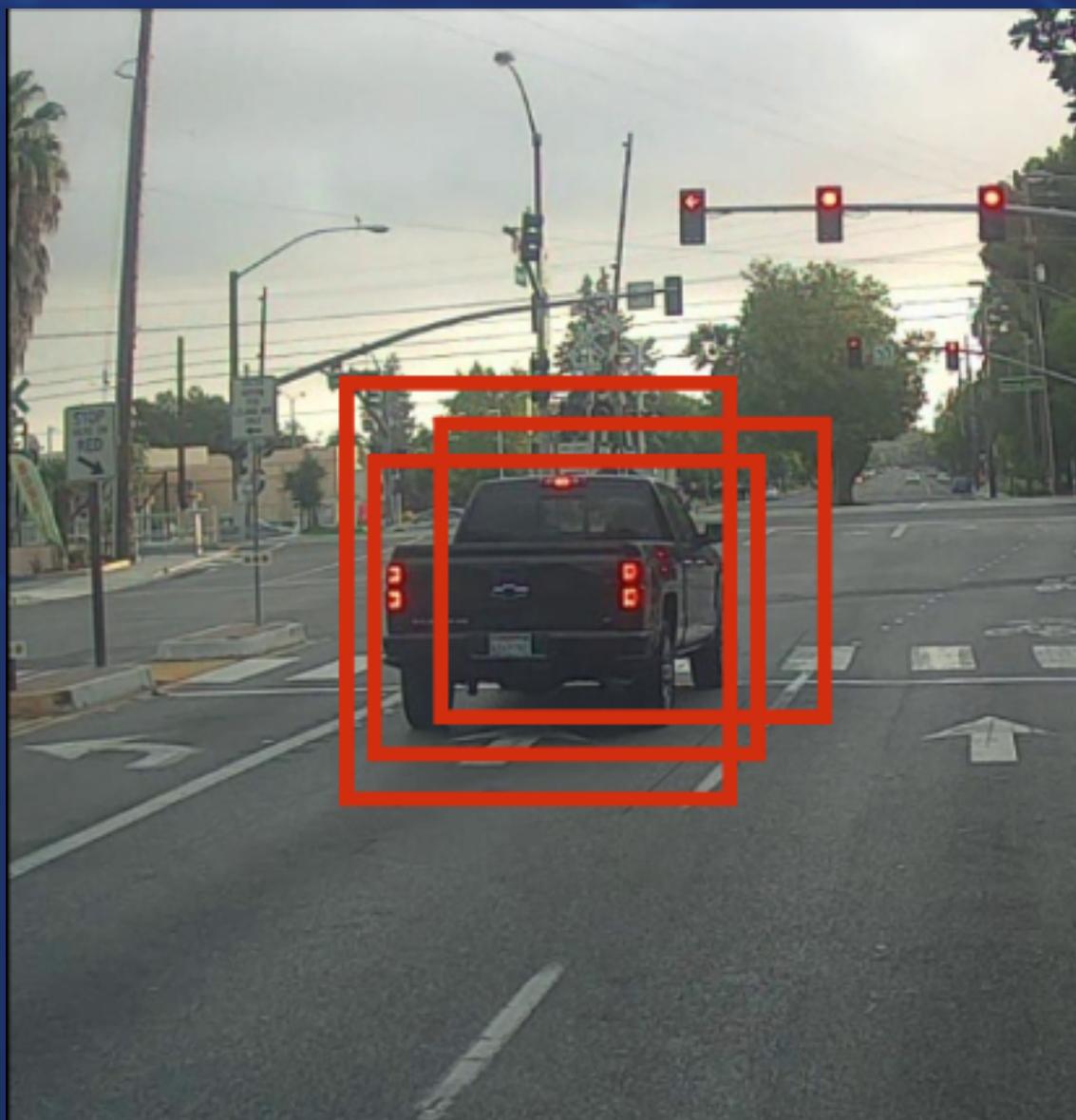


# SOLUTION (COMBINE MODELS)

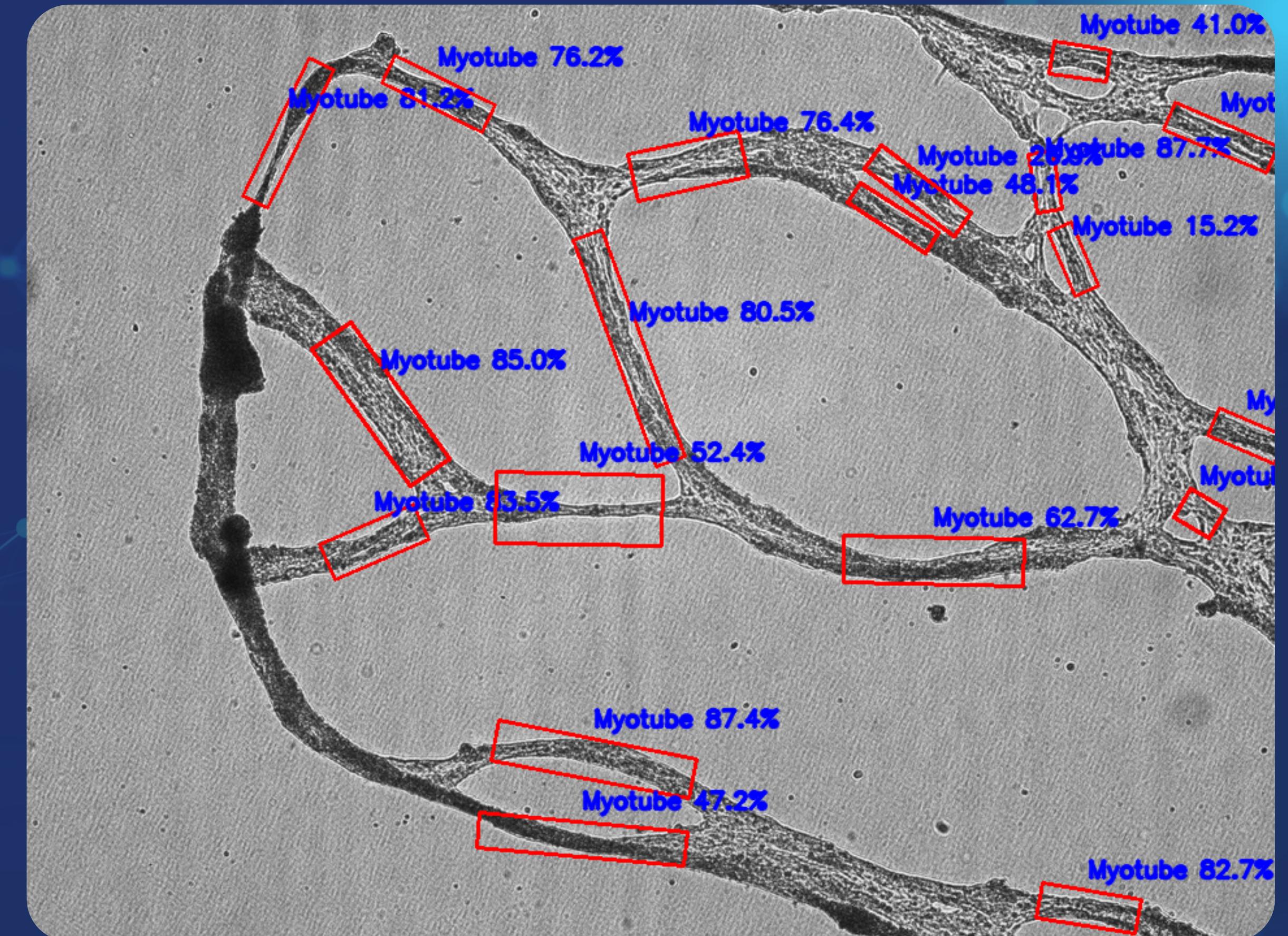


# SOLUTION

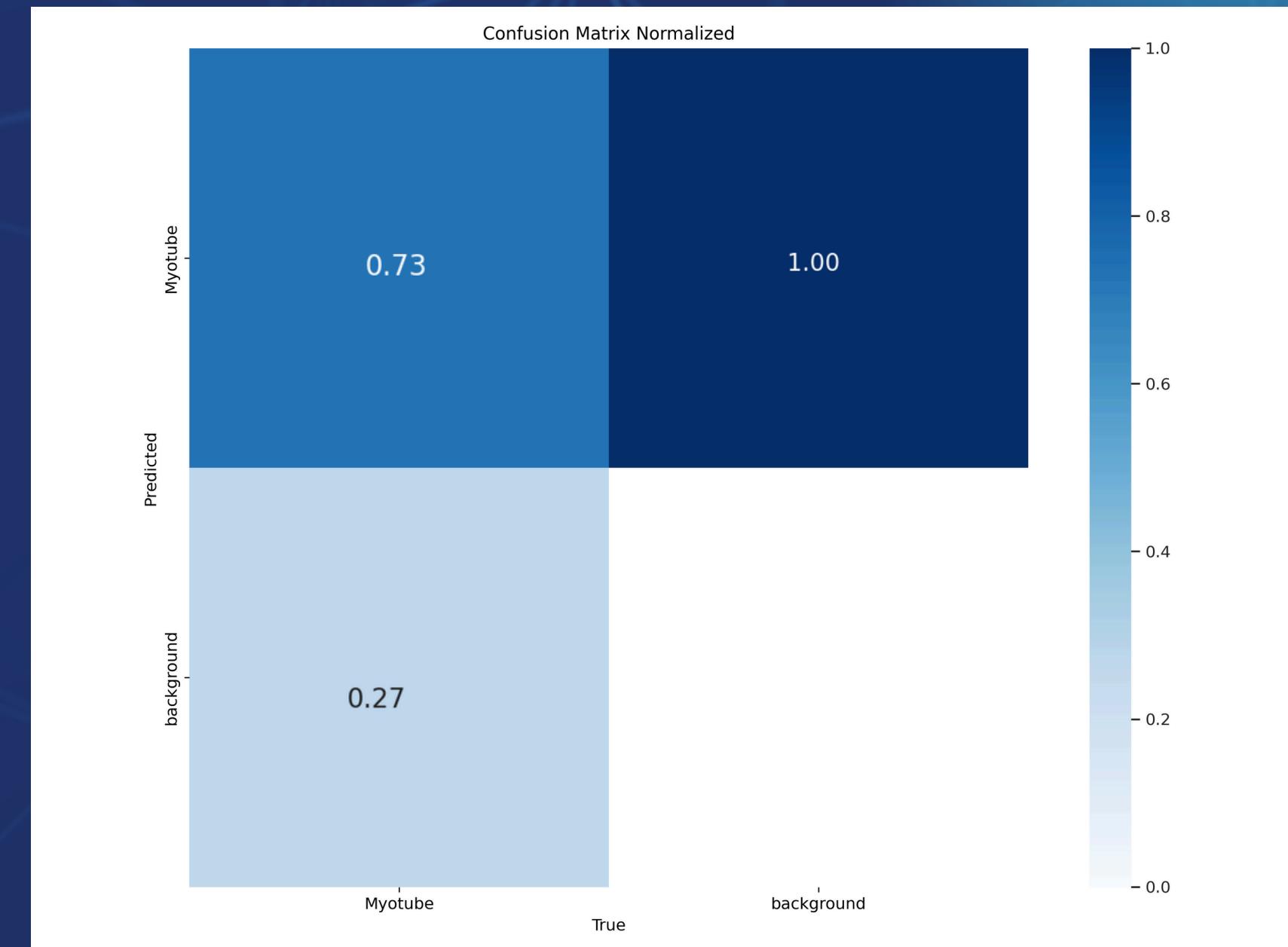
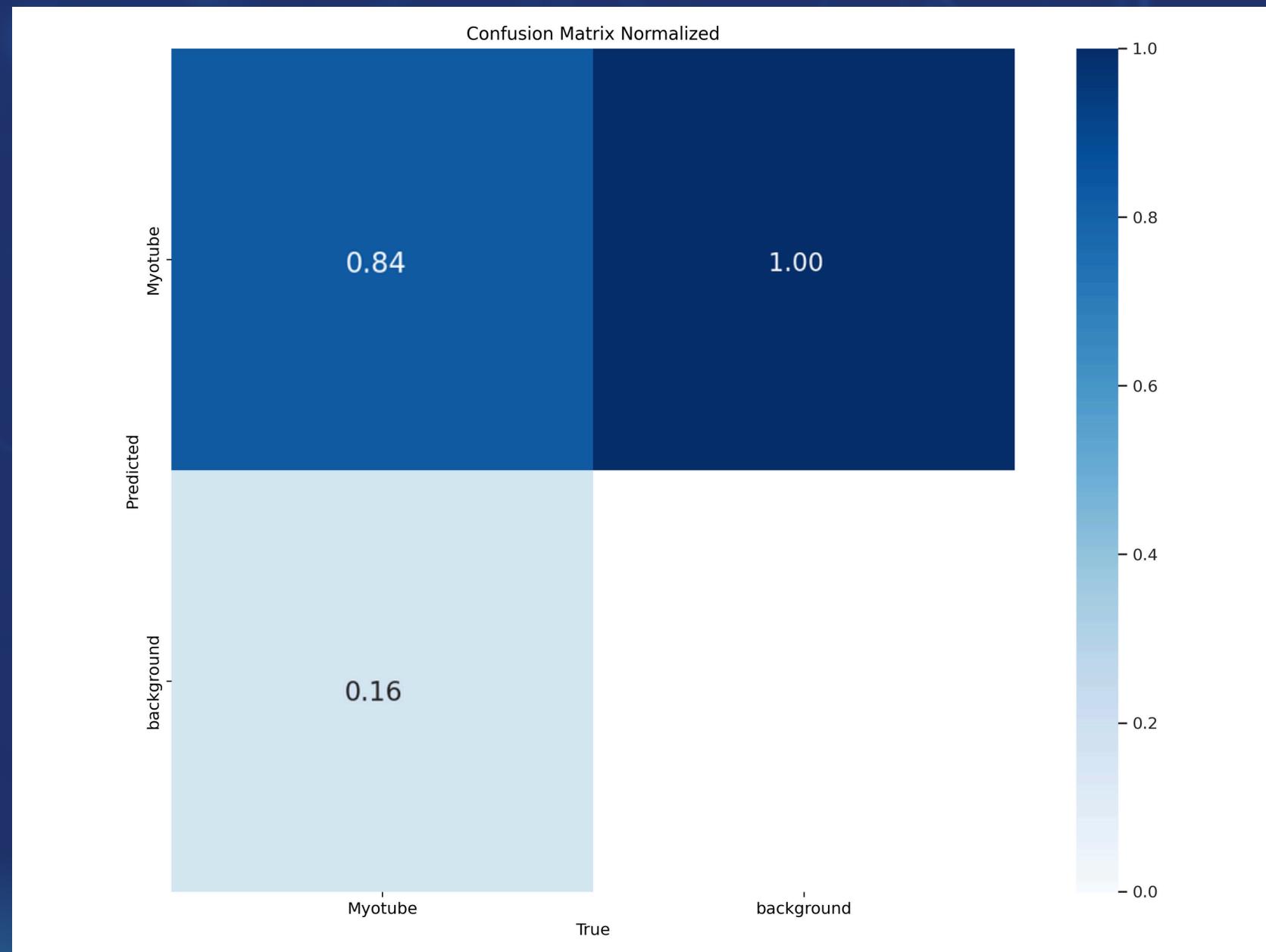
(APPLY NON-MAXIMUM-SUPPRESSION)



# SOLUTION (WITH NON-MAXIMUM- SUPPRESSION)



# RESULTS



# WORKFLOW

1

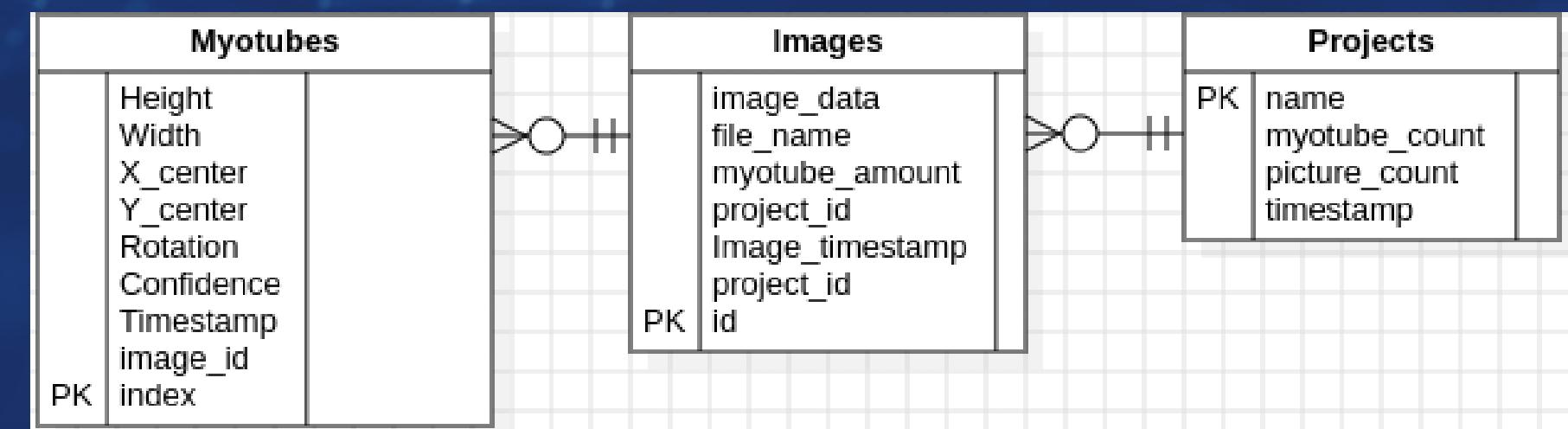


The software will be included with a **USER MANUAL**

2



As well as a **TUTORIAL VIDEO**



# BENEFITS OF USING NOW

01



Less time spent in manual segmentation, which can take up around 4 hours of work per 100 images

02

Higher consistency in labeling images, allowing for more focus on obtaining useful insights



# THANK YOU

