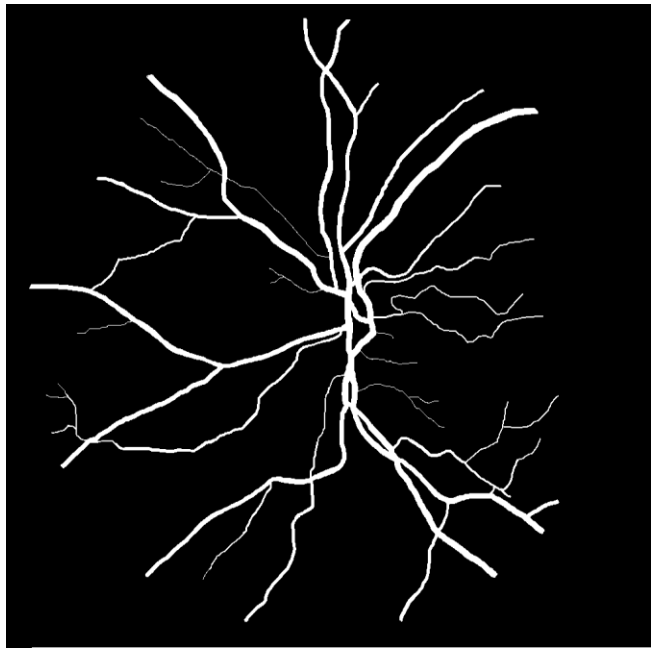
Retinal Vessel Segmentation

Jakub Svoboda – xsvobo0z

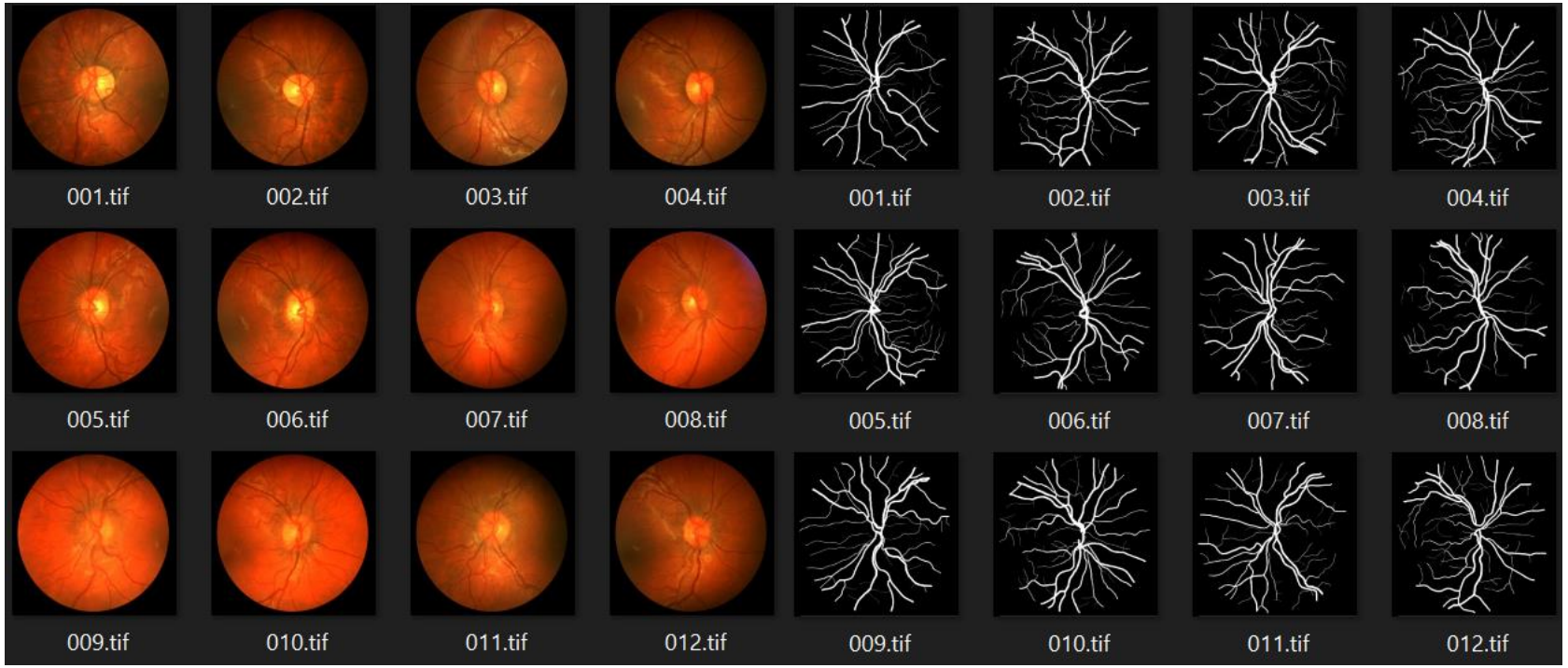
The task

- Localize and segment blood vessels in human retinal images
- Try out multiple algorithms
- Measure and compare accuracy



The datasets

- A merge of DRIVE dataset, STARE dataset and the CHASE DB1.
- 20 + 28 + 20 images = 68 total (+ 68 masks)
- For neural network – 48/20 train/test split

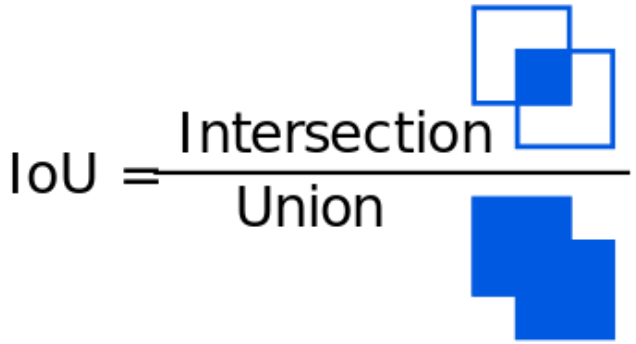


Methods

- Binary global thresholding
- Adaptive thresholding (mean and gaussian)
- U-Net neural network

Results

- Accuracy measurement: IoU
- Intersection of pixels divided by the union



Method:	Accuracy
Binary global thresholding	8%
Adaptive thresholding - mean	23%
Adaptive thresholding - gaussian	21%
U-Net	38%

Demonstration