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Subject: Intravital imaging and 4D quantification of tumor growth and the tumor vasculature

Notes

- Jean-Yves: 3D Gabor filters, but it does not exist yet and solve the problem for tubes that are full (https://en.wikipedia.org/wiki/Gabor_filter).
- Szymon: is this an open problem? Hollow object problem
  - JY -> Szimon: moving from hollow to full is what the Watershed does no? I also remember that on Definiens there is an algorithm called "gruyere" that does region growing constrained by roundness. I mean, there are stuff out there that addresses this, but in my humble knowledge most of them are 2D only.
- Simon: Try ImarisXT and MATLAB for filling *already* segmented hollow vessels
- Joackim: 2001 method
- Simon: Use tools from Graph Theory to analyse extracted network --- e.g. MATLAB's *biograph* function
- Simon: Consider using machine learning (dictionary based) for segmentation (talk also to Daniel Sage)
- Jan Eglinger: also ilastik's Edge Training with Multicut could help here (is there an online ref to explain what is multicut ?) it's poorly documented yet -> talk to Fred, or Anna Kreshuk?
- Devrim: Somebody suggested Frangi vesselness filtering to detect the tumor vasculature. However intensity of your vessels are not consistent, meaning boundaries are bright while center is dark. So, simple vesselness filtering may fail. You may need to incorporate some shape constraint. We may discuss more if you are interested. unaydevrim@gmail.com
- Ofra: i will be happy to share similar images

Join the discussion here.