

FiNTA Analysis Report

Franzi_CPD_012.tif

Job	fdcf9293-ca43-4b6e-8a4b-ec4e20c1230c
Workspace	Beispiel Landingpage
Image	Franzi_CPD_012.tif (image/tiff, 952 KB)
Settings profile	ad-hoc parameters
Status	Succeeded
Created	2026-08-15T15:01:45.192Z
Started	2026-08-15T15:01:45.251Z
Finished	2026-08-15T15:04:13.156Z
Runtime	2 min 28 s
Exit code	0

All lengths are in nm and all areas in nm², from the scale bar measured when this job was created.

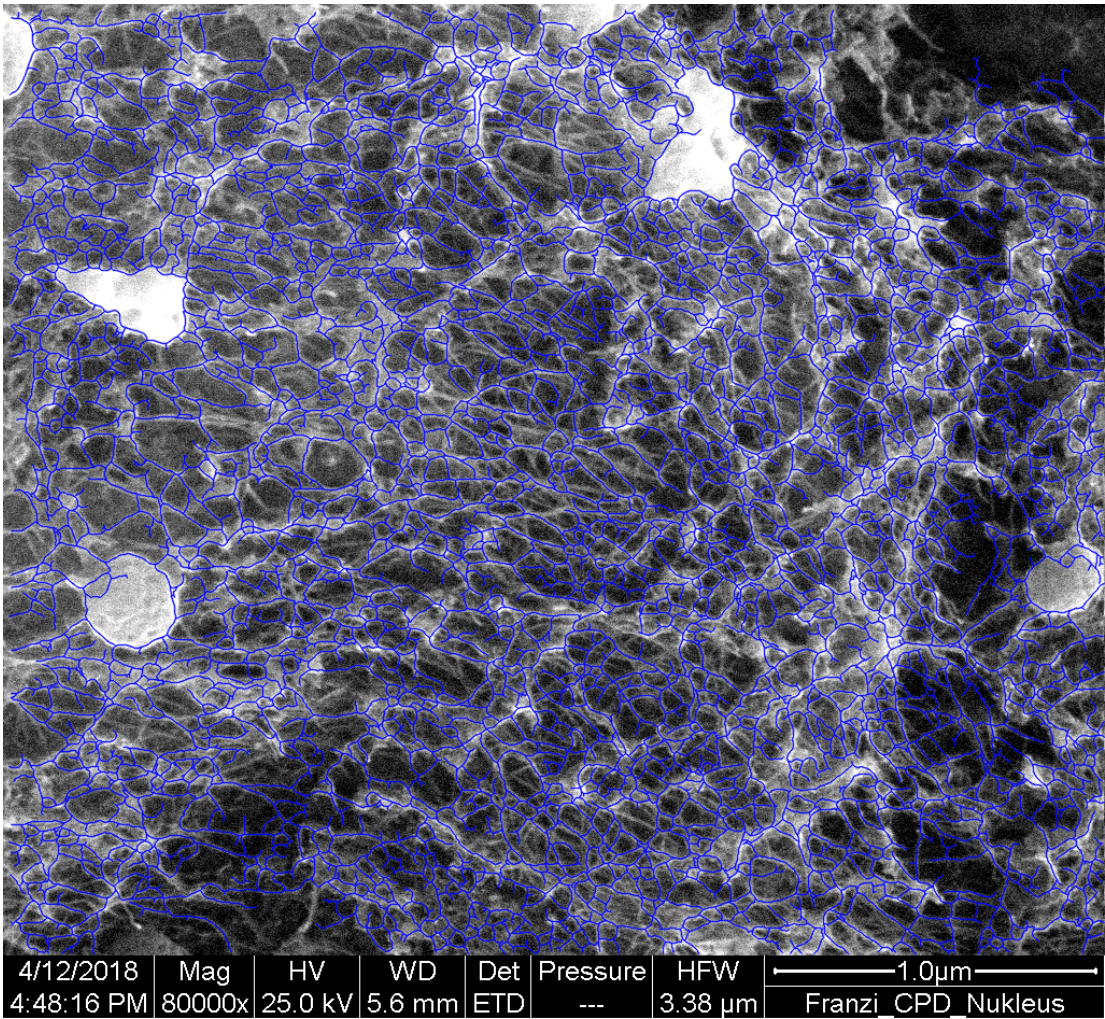
Summary

Nodes in total	29,025
Junctions in total	4,326
Total network length	282,910
Junctions in total, unified within 0	4,326
Persistence length of the whole network, angle threshold 0.35	523.88
Nodes belonging to closed loops	23,350
Junctions in the closed-loop network	2,826
Closed loops in total	1,454
Total area of all loops	45,337,000
Total length of the closed-loop network	228,172



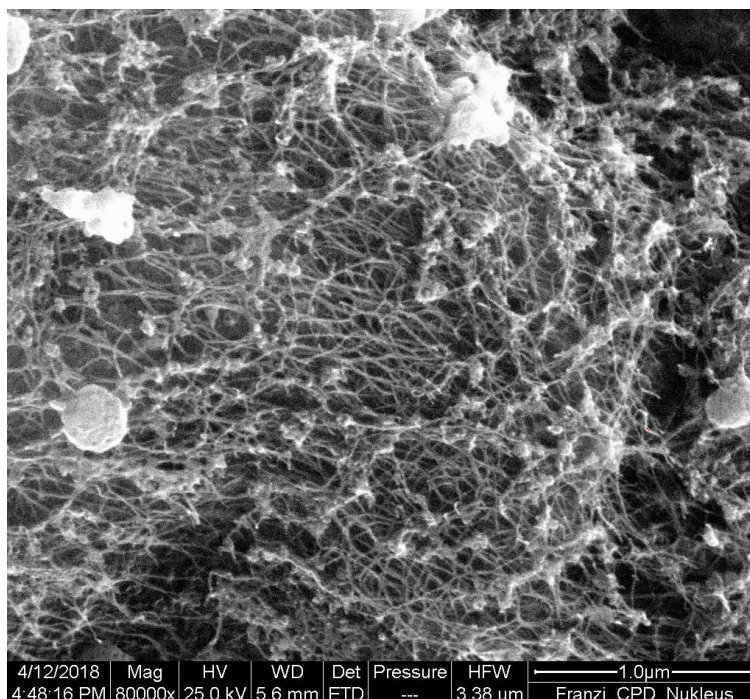
Traced output

overlay



Animation (animate_tracing)

tracing (poster frame)



tracing - video/x-msvideo, 31.2 MiB - included in the ZIP export as video/animation_tracing.avi

tracing (MP4) - video/mp4, 2.0 MiB - included in the ZIP export as video/animation_tracing.mp4

Distributions

Quantity	Unit	n	Mean	Q1	Median	Q3	Std. dev.	Min	Max
Mesh areas	nm ²	1,454	5,724	1,489	2,997	6,136	8,442	228.53	92,261
Mesh areas (fiber thickness 4)	nm ²	1,454	3,885	554.7	1,554	3,952	7,072	-365.62	78,880
Mesh circumferences	nm	1,454	299.26	163.87	233.06	352.21	220.42	77.22	2,129
Mesh circleness (4 π A/U ²)		1,454	0.652	0.550	0.666	0.757	0.143	0.201	0.943
Mesh diameters	nm	1,454	109.76	60.11	88.13	132.42	73.56	28.27	577.3
Junction distances (whole network)	nm	7,341	38.54	19.8	29.71	49.51	26.83	4.89	267.95
Junction connectivity (whole network)		4,326	3.03	3	3	3	0.183	3	6
Fiber lengths (whole network), cutoff 0.35 rad	nm	5,279	42.16	19.8	29.71	49.51	30.73	7.61	347.45

Orientation

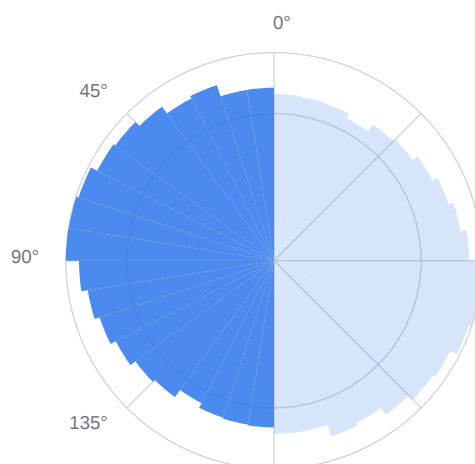
Fiber orientations (whole network)

n
30,478

Orientations are shown as the rose below and not as a mean, a median or a preferred direction: the angles wrap at 180°, and every such number stands for a shape the rose already shows. The circular statistics are computed and kept in csv/distributions.csv.



Fibre orientations (whole network)



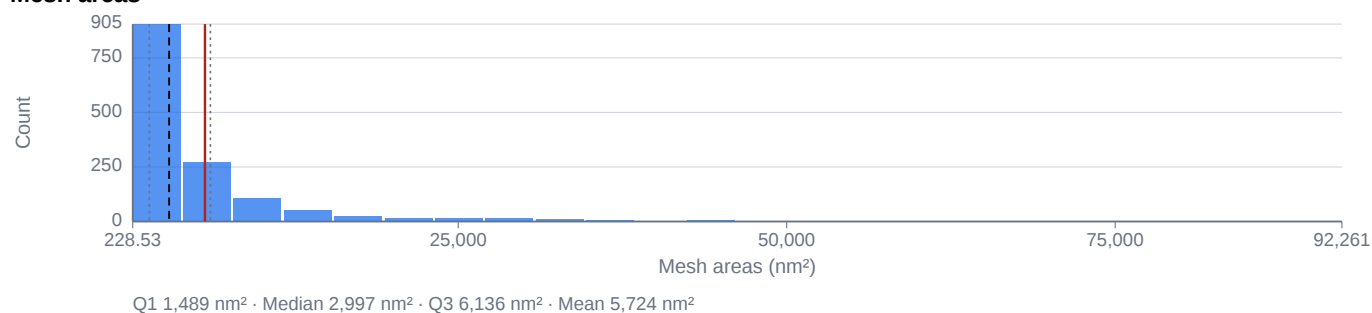
Orientation rose. 0° is the images vertical, 90° its horizontal; wedge area is proportional to the count. The solid half is the measurement, the faint half the same measurement drawn at its opposite angle - a fibre has no head or tail, so there is no separate data between 180° and 360°.

Totals

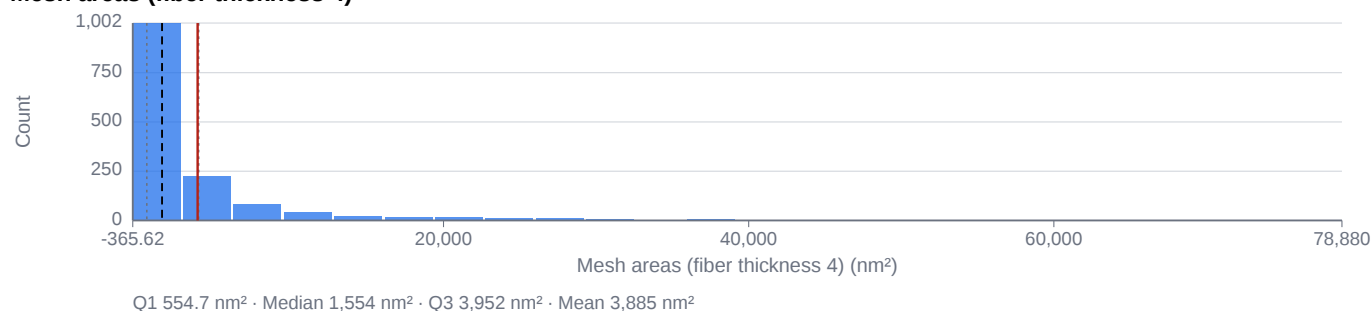
Mesh areas	8,322,418 nm ²
Mesh areas (fiber thickness 4)	5,649,022 nm ²
Mesh circumferences	435,119 nm
Mesh diameters	159,594 nm
Junction distances (whole network)	282,910 nm
Fibre lengths (whole network), cutoff 0.35 rad	222,575 nm

Histograms

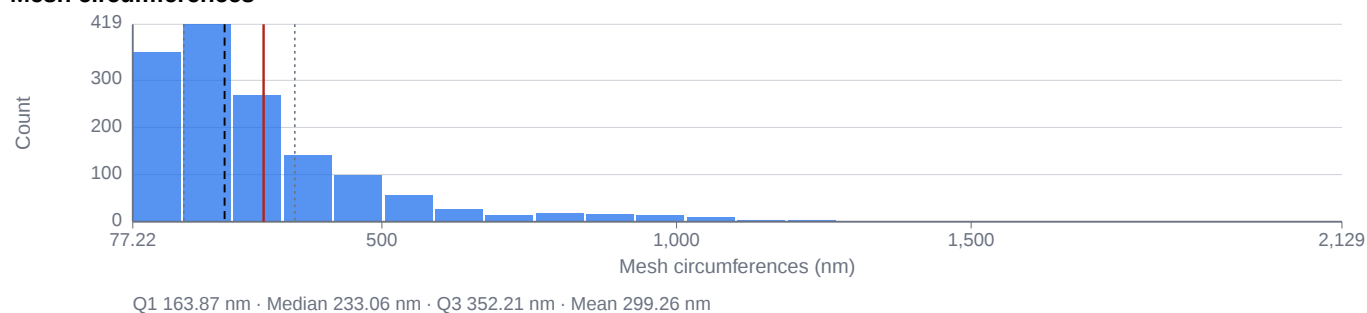
Mesh areas



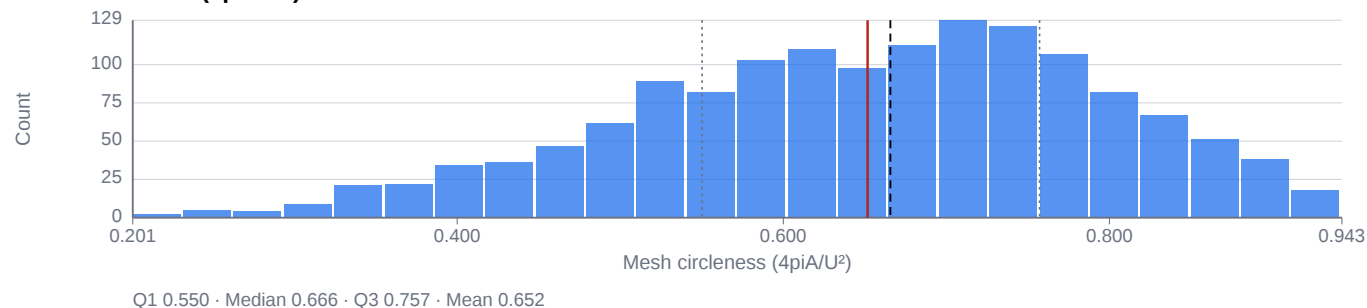
Mesh areas (fiber thickness 4)



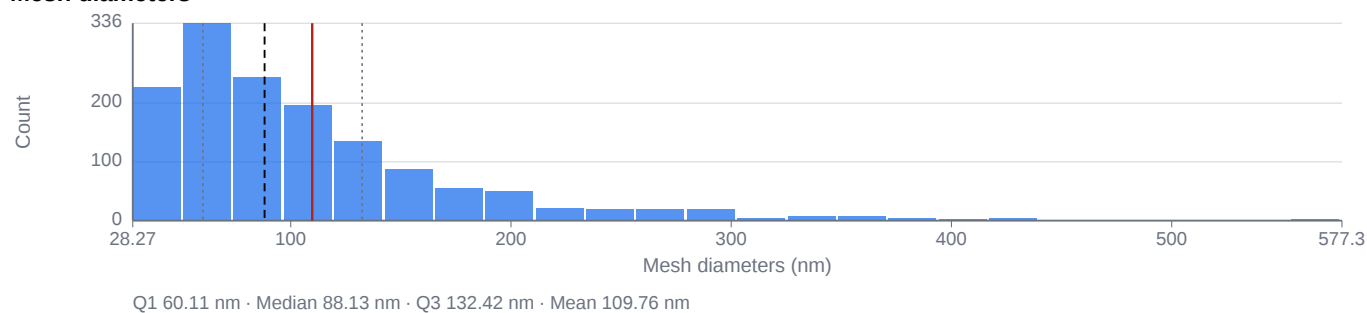
Mesh circumferences



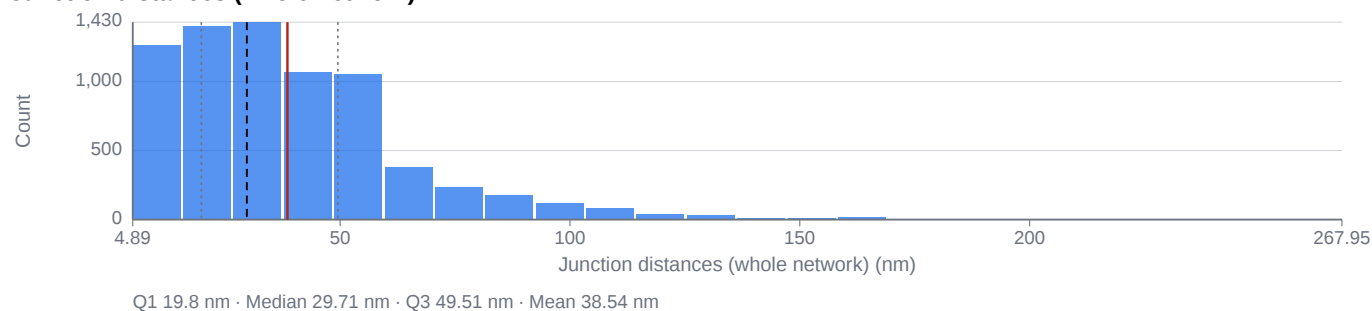
Mesh circleness ($4\pi A/U^2$)



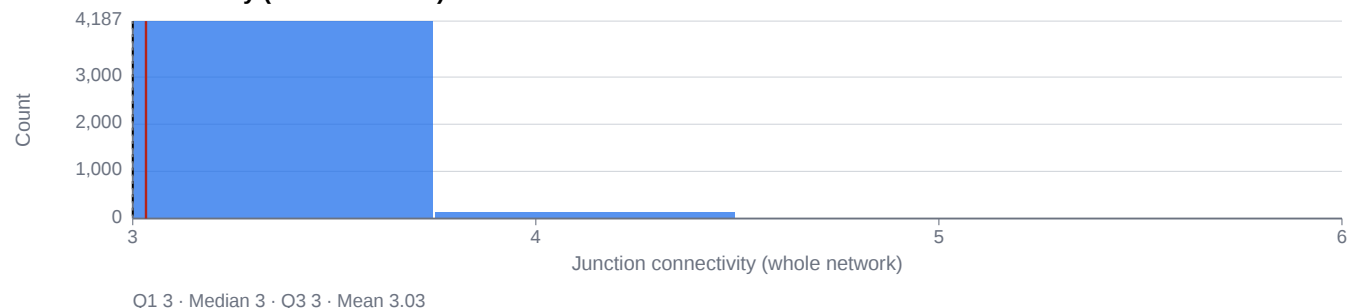
Mesh diameters



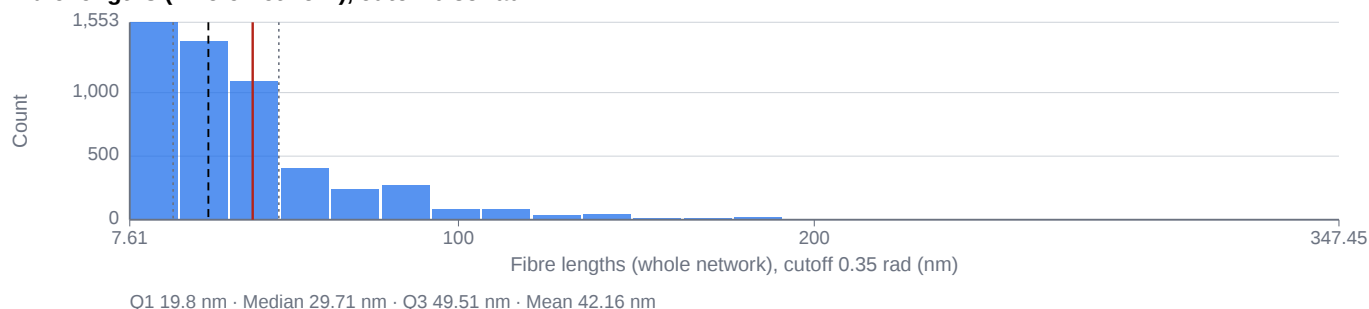
Junction distances (whole network)



Junction connectivity (whole network)

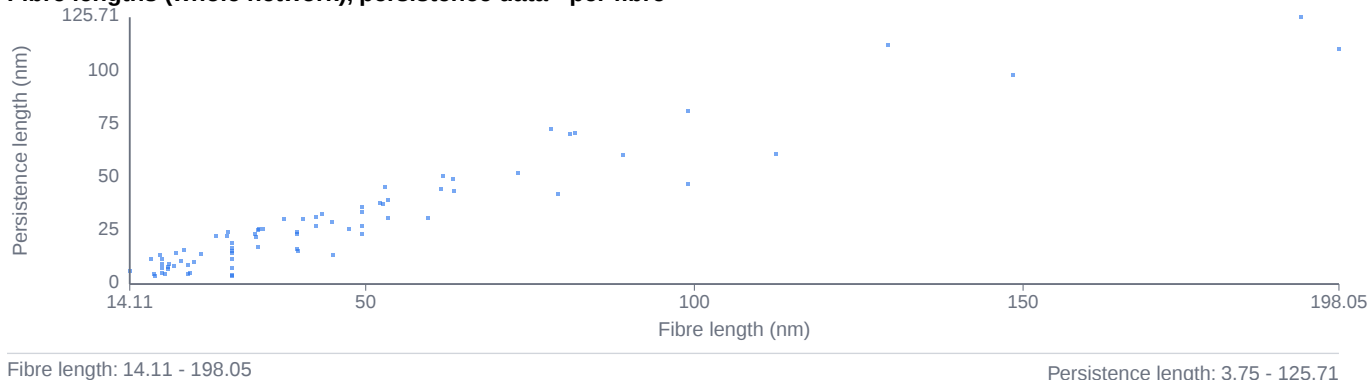


Fibre lengths (whole network), cutoff 0.35 rad



Persistence data (point clouds)

Fibre lengths (whole network), persistence data - per fibre



Mean over the 78 fibres shown: 30.05. An average over fibres, weighting a short one like a long one - not FiNTAs network-wide fit, which pools every segment pair. 3,795 further fibres are not shown: each stayed straight over its whole traced length, so its fit is a lower bound rather than a length.

FiNTA settings used

```
sigma_smooth 0.6
sigma_conv 1.8
r_max 8
r_step 3
r_min 0
steps 360
thresh 1.3
min_loop_length 7
delete_worst_sections
crop 0 0 1024 883
use_modified_hessian
auto_startpoint 1
set_scale 1024 px = 3380 nm
draw original network name ./results/draw_overlay.png
animate_tracing name ./results/animation_tracing
save_auxiliary_data ./results/data_summary.dat
save_loop_areas ./results/data_mesh_areas.dat
save_loop_areas ./results/data_mesh_areas_fiber_corrected.dat 4
save_loop_circumferences ./results/data_mesh_circumferences.dat
save_loop_circleness ./results/data_mesh_circleness.dat
save_loop_diameters ./results/data_mesh_diameters.dat
save_all_absolute_angles ./results/data_fiber_orientations_all.dat
save_all_junction_distances ./results/data_junction_distances_all.dat
save_all_junction_connectivities ./results/data_junction_connectivity_all.dat
save_all_line_lengths 0.35 ./results/data_fiber_lengths_all.dat persistence_data ./results/
data_fiber_lengths_all_persistence.dat
```

