SPECHT: Self-tuning Plausibility Based Object Detection Enables Quantification of Conflict in Heterogeneous Multi-scale Microscopy

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2D projection of 3D volumetric signal is demarcated by negative 2nd derivative.

Kurtosis based z-scaling aligns object detection across distribution shapes

Probabilistic labelling of objects in PC3PTRF is consistent across parameter space

A healthy donor tissue (H1)

B healthy donor tissue (H2)

C AD donor tissue

D Component model 1 $Bel_{H_1}(o \rightarrow AD)$

E Joint model $Bel_{H'}(o \rightarrow AD)$

F Component model 2 $Bel_{H_2}(o \rightarrow AD)$

10 μ m
0 1 $Bel(o \rightarrow AD)$

A.1 CRISPR Cav1 Objects

Kurtosis aligned
PRC 2.0 ~ $Z = 1.22$
Fixed Z filtering ($Z = 1.5$)

A.2 PC3 Cav1 Objects

Kurtosis aligned
PRC 2.0 ~ $Z = 0.935$
Fixed Z filtering ($Z = 1.5$)

A.3 PC3PTRF Cav1 Objects

Kurtosis aligned
PRC 2.0 ~ $Z = 1.246$
Fixed Z filtering ($Z = 1.5$)