

Exercise

Consider the confocal image stack used in the PC labs.

Adopting the recursive stabilization approach starting from $f_0(z) = z$, define a sequence of VSTs f_n , $n > 0$, for this image stack:

$$f_{n+1}(z) = \int \frac{1}{\text{std}\{f_n(z)|\theta\}} dE\{f_n(z)|\theta\}$$

Evaluate the stabilization accuracy by inspecting the mean vs. st.dev scatterplots for $n = 0, 1, 2, 3, 4$.

Hints:

- implement the VST via a look-up table
- use cumulative trapezoidal integration over discrete vectors for the mean and st.dev.
- pay attention to the way the look-up table is interpolated and extrapolated

Deliverable:

PDF document including scatterplots, commented codes, and a couple of paragraphs of text describing the procedure and its numerical implementation.