**Summary of current status:**

SOFI 2D:

* batch processing or single file for different file formats (tif, tiff, mat, raw…)
* 2D processing up to high orders (6 or 8?)
* start, stop, stop to read data, subsequence size?
* Bleaching correction (fitting of exponential to time trace)?
* flattening (different options?)
* denoising?
* deconvolution: Lucy-Richardson Gaussian or Airy psf, two implementations of augmented Lagrangian Gaussian psf
* linearization (standard sqrt etc or adaptive linearization (needs at least 3 orders))
* reconvolution
* bSOFI processing (filling in structural gaps with lower order cumulants)?
* molecular parameter estimates
* SNR and FRC estimation (not sure if the code is properly in)
* correlation analysis with on-time estimation
* drift correction based on ThunderSTORM file (fiducial marker tracking or autocorrelation) or based on SOFI subsequences (which order?)

SOFI biplane:

* + batch processing or single file for Prof. Schwartz data format
  + AD-gut microscope data format
  + plane coregistration based on stack of beads or image cross-correlation
* start, stop, stop to read data, subsequence size?
  + processing up to 4th order
  + flattening (different options?)
  + deconvolution 3D: Lucy-Richardson, augmented Lagrangian currently not in main code
  + linearization (standard sqrt etc)

SOFI 3D:

* + batch processing or single file for raw data from 8plane prism setup (old code for BS setup), specification of calibration and data files, now: raw data from labview DAQ, tiff for calibration file
  + start, stop, stop to read data, subsequence size, subsequence overlap?
  + plane coregistration based on a stack of beads
  + processing up to 4th order (?)
  + flattening (different options?)
  + deconvolution 3D: Lucy-Richardson, augmented Lagrangian currently not in main code
  + linearization (standard sqrt etc)
* drift correction based on SOFI subsequences (2nd order?)

SOFI MC:

* batch processing or single file for AD-gut microscope data format
* 2D processing second and third order
* flattening (different options?)
* deconvolution: Lucy-Richardson, two implementations of augmented Lagrangian
* linearization (standard sqrt etc)
* reconvolution
* unmixing of 3 colors (4 color matrix exists, but not fully implemented in code)
* optimization code to run parameters in a loop, use decorrelation analysis on saved data
* code to try different unmixing coefficients

**To be changed/reorganized/explained:**

* Readme/manual for all codes
* test with Matlab2020
* ensure interoperability Windows/Unix/Mac
* enable processing in 2D to higher orders
* allow choice of lag-time for 2D SOFI
* same file structures for I/O and consequently in settings file if applicable
* efficient reading of large (tif) files >4Gb
* single file or batch processing for all
* include the option to set the lag time for cumulant calculation
* biplane 1st order as output
* biplane include channel weights
* CPU implementation of cumulant calculation working (I had some errors)? Supply mex files for up-to-date OS versions
* including biplane processing in 3D code, choose between calculating virtual planes or not
* include molecular parameter estimates for multiplane processing
* general options for deconvolution should be the same if possible (choose deconvolution, linearization and reconvolution separately)
* adaptation of z-processing for deconvolution biplane/8plane data (need to provide better deconvolution in the future)
* always output interplane distance for multiplane data
* output drift correction
* reorganization of optional molecular parameter estimates output (ev. tif files)
* clarify which paper the parameter estimation is follwing
* options to display only common FOV for biplane/3D data
* what is the denoising/medfilt?
* release the memory after processing
* possibilities to use less memory?