Alan Shteyman, names March 17, 2014

O2-740

Project # 2: Particle Detections

B.1) The image sequence was downloaded

B.2.1) The mean and standard deviation of the background was found to be ~ 307 and

~24, respectively.

B.2.2) Using the equation, , , since a pixel is 65nm wide, then sigma is about 1.18 pixels. 1.18 was used to calculate the Gaussian Mask which was a 3X3 matrix.

We then compared the performance of using a 3X3 mask vs. a 5X5 mask for finding local maximums, the 3X3 mask found more local maxima.

B.2.3)

B.2.4)

B.3.1)

B.3.2)

B.3.3)

References

[1] A. Ponti, P. Vallotton, W. C. Salmon, C. M. Waterman-Storer, and G. Danuser, Computational analysis of F-actin turnover in cortical actin meshworks using fluorescent speckle microscopy, Biophysical Journal, 84:3336-3352, 2003.

[2] M. K. Cheezum, W. F. Walker, and W. H Guilford, Quantitative comparison of algorithms for tracking single fluororescent particles, Biophysical Journal, 81:2378-2388, 2001.