Single-step DFT subpixel registration under Poisson noise

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Original and shifted images at various noise levels

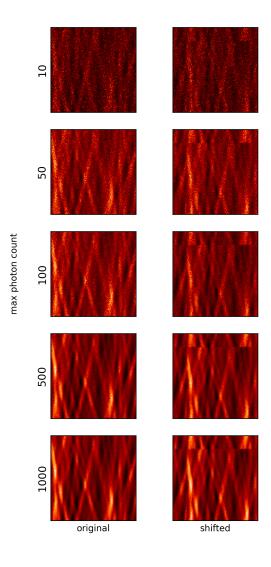


Figure 1: Pairs of images that will be used to test registration

Correlation stages

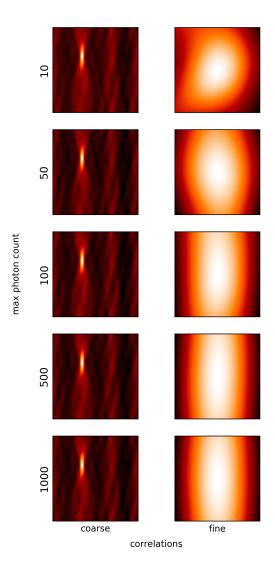


Figure 2: Coarse and fine correlation maps. Coarse is over a 160×160 region (the whole image), while fine is over a single pixel.

| Max photon count | offset error (px) | |
|------------------|-------------------|--|
| 10 | 0.55 | |
| 50 | 0.27 | |
| 100 | 0.20 | |
| 500 | 0.09 | |

| Max photon count | offset error (px) | |
|------------------|-------------------|--|
| 1000 | 0.07 | |