Supplementary
A

$$
\text { center }\left(\left[\begin{array}{ccc}
p_{1} 1 & \cdots & p_{11} 1 \\
\vdots & \ddots & \vdots \\
p_{1} N & \cdots & p_{11} N
\end{array}\right]\right)=\left[\begin{array}{cc}
\overline{p_{1}} & \overline{p_{11}}
\end{array}\right]
$$



Figure S1 Ideal number of simulations. (A) Visual representation of the centroid of a group of points. (B) We simulated n=10, 50, 100, 250, $500,750,1,000,2,000,5,000$, and 10,000 ideal Archimedean spirals with dithering, calculated the 11 metrics, and found the centroid of each group. We then use principal components analysis (PCA) to plot these centroids. (C) After finding the centroid of the PCA, we plot the distance from each PCA point to the centroid, noting a plateau in distance to the center after $\mathrm{n}=1,000$.

