



**SUPPLEMENTARY FIG. S4.** Spatial correlation analysis (620 nm data). Normalized OIS images from instances of highest spatial correlation to the IOM (**A, D, G**) for each ferret under resting and evoked conditions. Red arrows indicate patches reflecting the structure of orientation domains that are reproduced in the evoked or resting conditions for each ferret. These areas are more visibly apparent in the evoked case for all three ferrets (**B, E, H**). They are also visible in resting state for ferrets 1 and 3 (**C** and **I**, compared to **F**). These findings are consistent with the more quantitative analysis of spatial correlation coefficients shown in Figure 3E, which showed that evoked data tended to show greater spatial similarity to the IOMs than resting data and that resting data for ferrets 1 and 3 showed greater spatial similarity to the IOMs than control analysis.