## Discussion Questions by Paper

### Pouget et al. (2006)

* How do signal correlations vs. noise correlations differently impact information coding?
* Why might the brain tolerate some inefficiency in neural codes? What are the trade-offs?
* How does the "curse of dimensionality" apply to neural population decoding?
* What assumptions does optimal Bayesian decoding make that may not hold in real brains?
* How do the authors' theoretical predictions compare to experimental observations in various brain areas?

### Pillow et al. (2008)

* What advantages does recording from a "complete" population provide over sparse sampling?
* How do the authors separate signal from noise correlations experimentally?
* What are the limitations of their stimulus set and recording methods?
* How do their experimental findings compare to Pouget's theoretical predictions?
* What does "efficient coding" mean in the context of retinal processing?

### DiCarlo et al. (2012)

* How do the hierarchical transformations in ventral stream relate to population coding principles?
* What evidence supports feedforward vs. recurrent processing in object recognition?
* How might the coding principles from earlier papers apply at different levels of the visual hierarchy?
* What can current AI/deep learning tell us about biological object recognition (and vice versa)?
* How do invariance and selectivity trade off across the visual hierarchy?