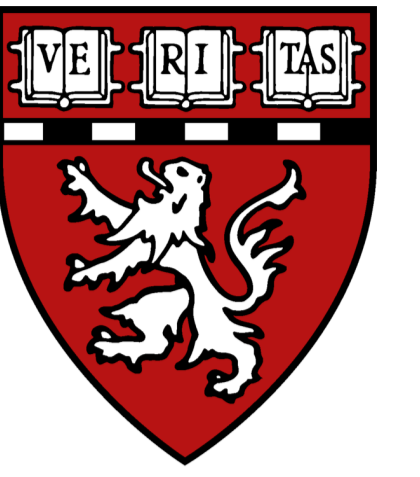


Advantage and Disadvantage of Sequential vs. Simultaneous Search in Simulated Breast Cancer Screening

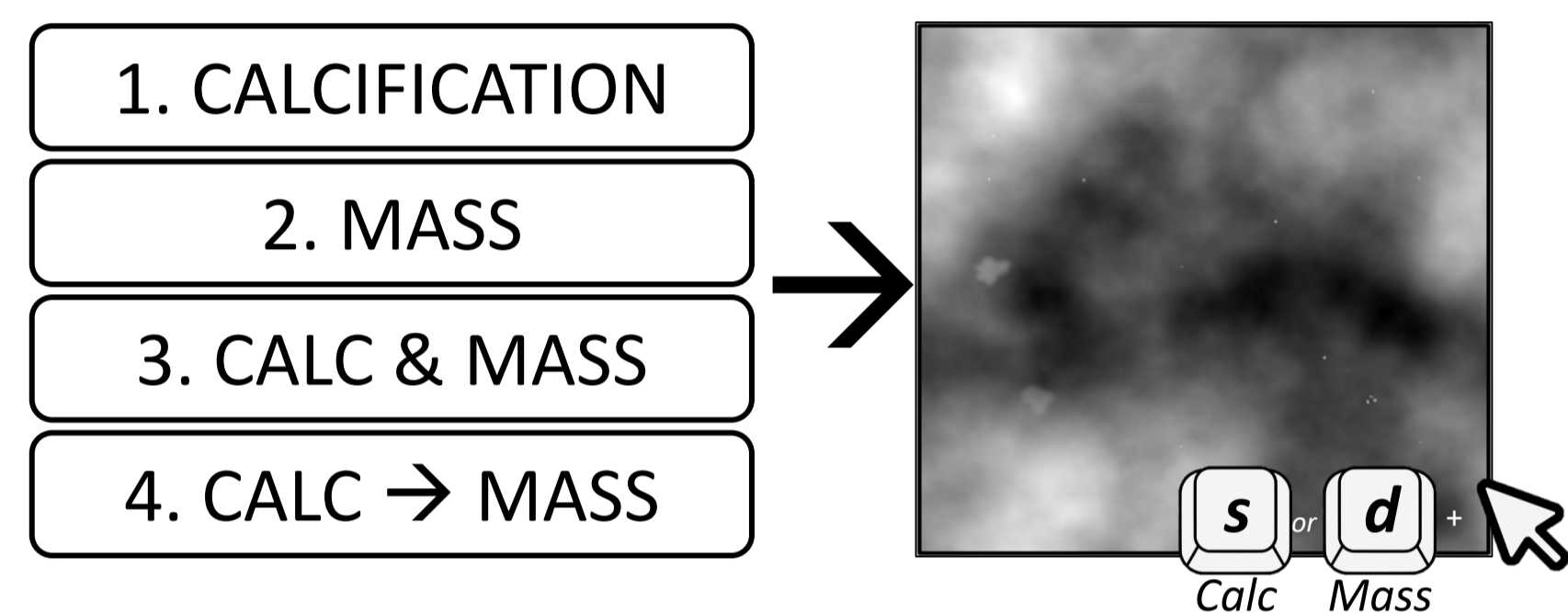


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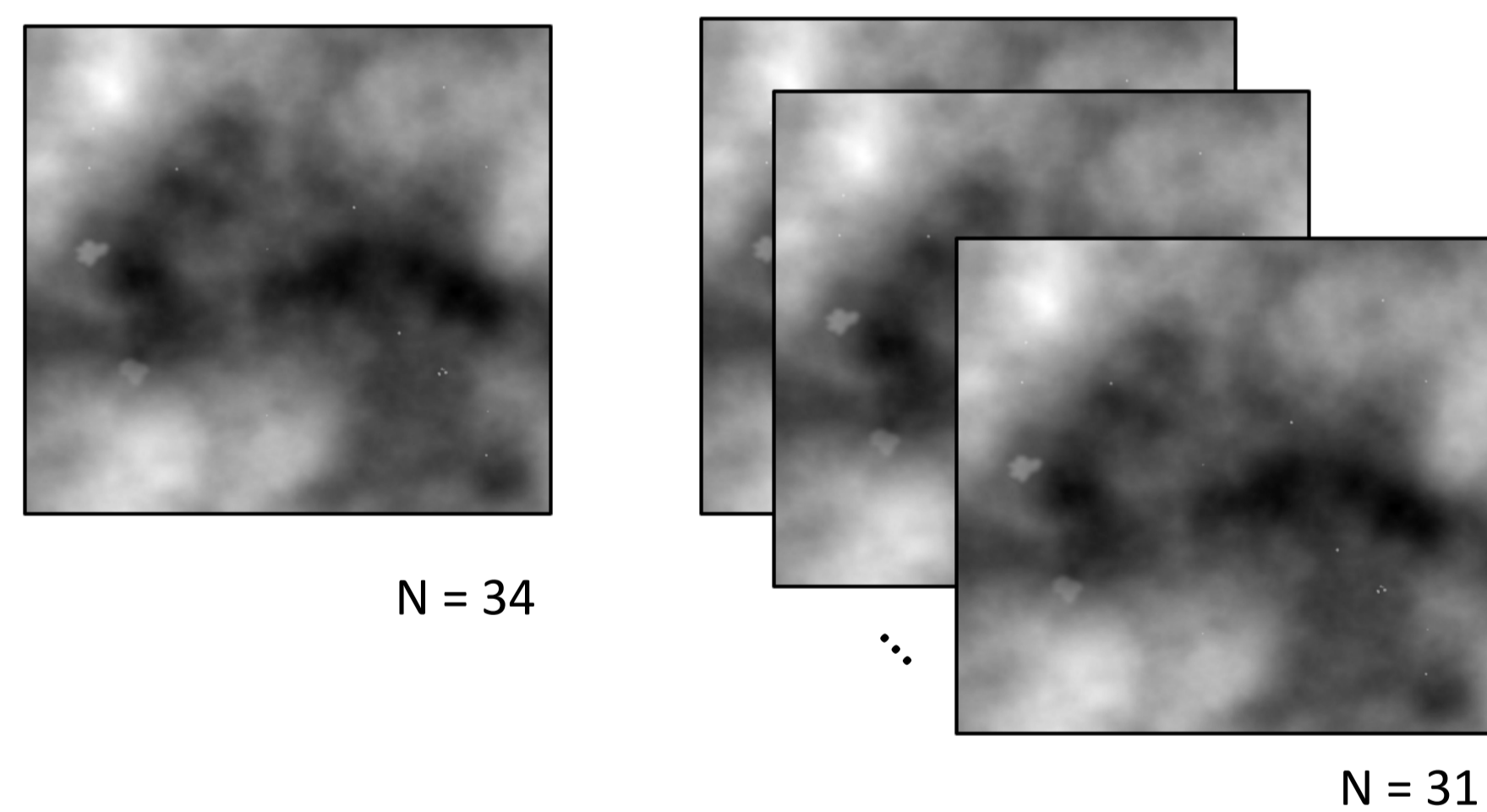
Will splitting a hybrid search into multiple simple searches improve target detection in breast cancer screening?

Four Tasks

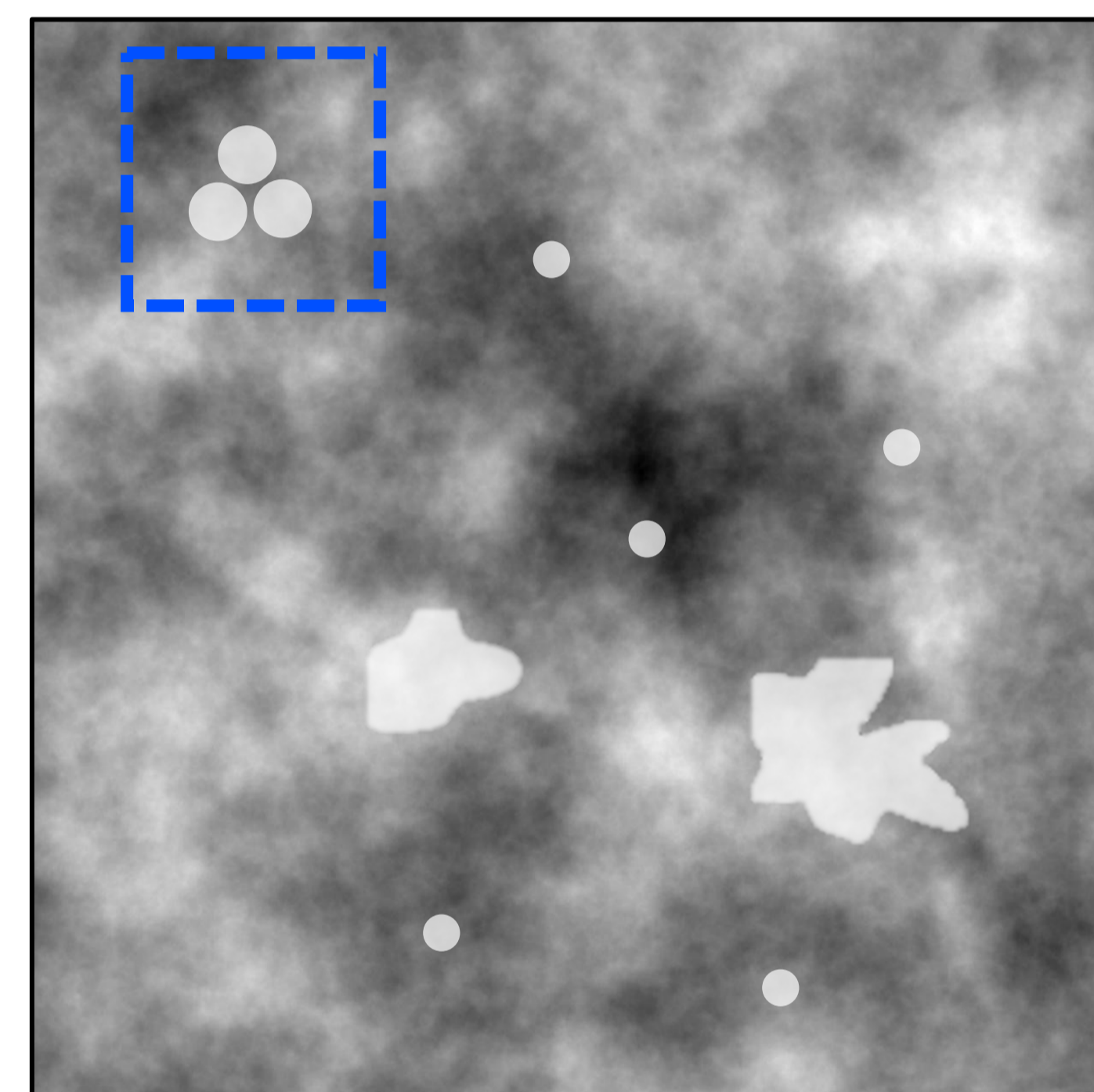
Click the task-relevant target while pressing target-related key, if the target is present.



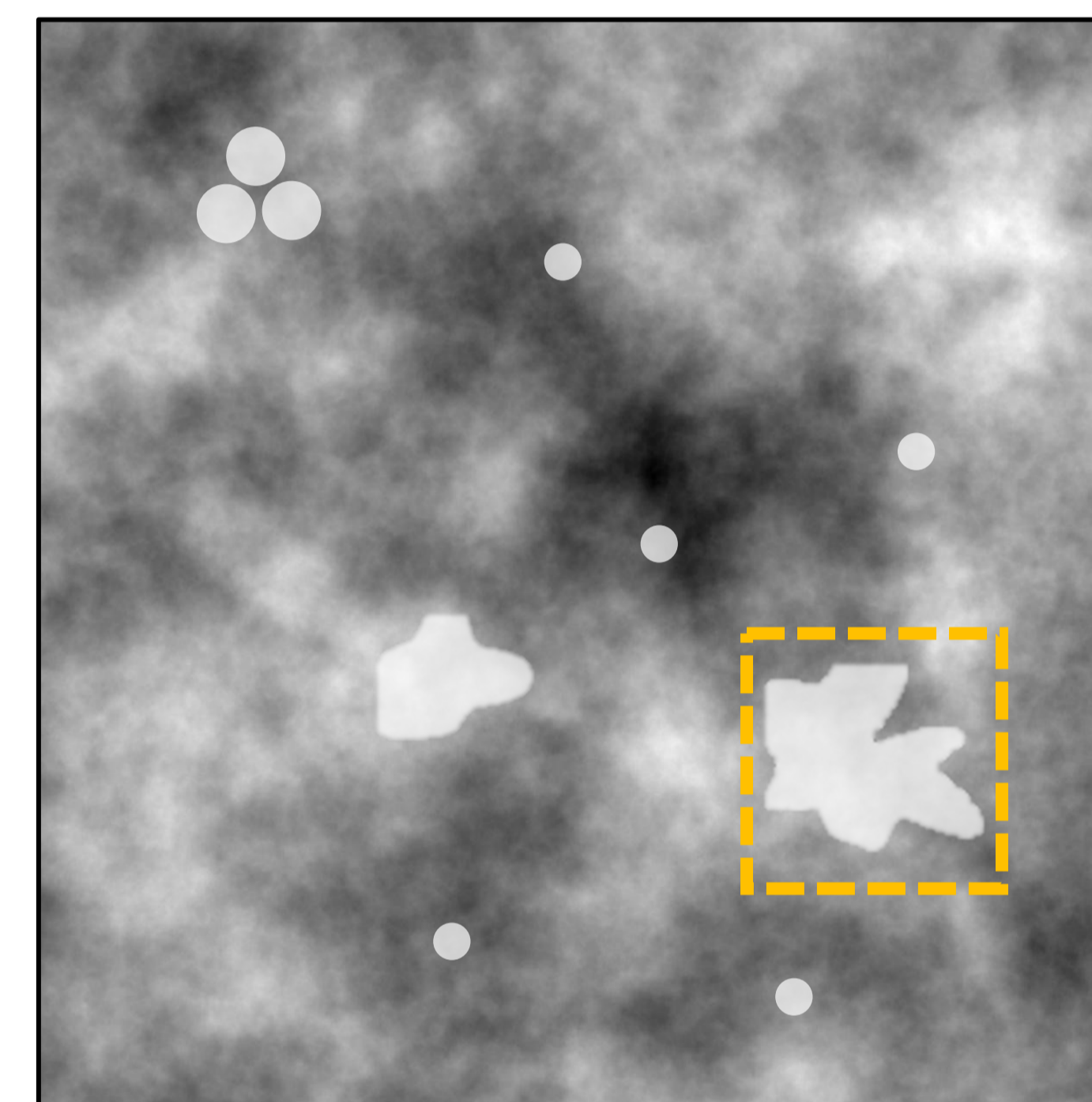
EXP 1 Mammogram
EXP 2 Digital Breast Tomosynthesis (DBT)



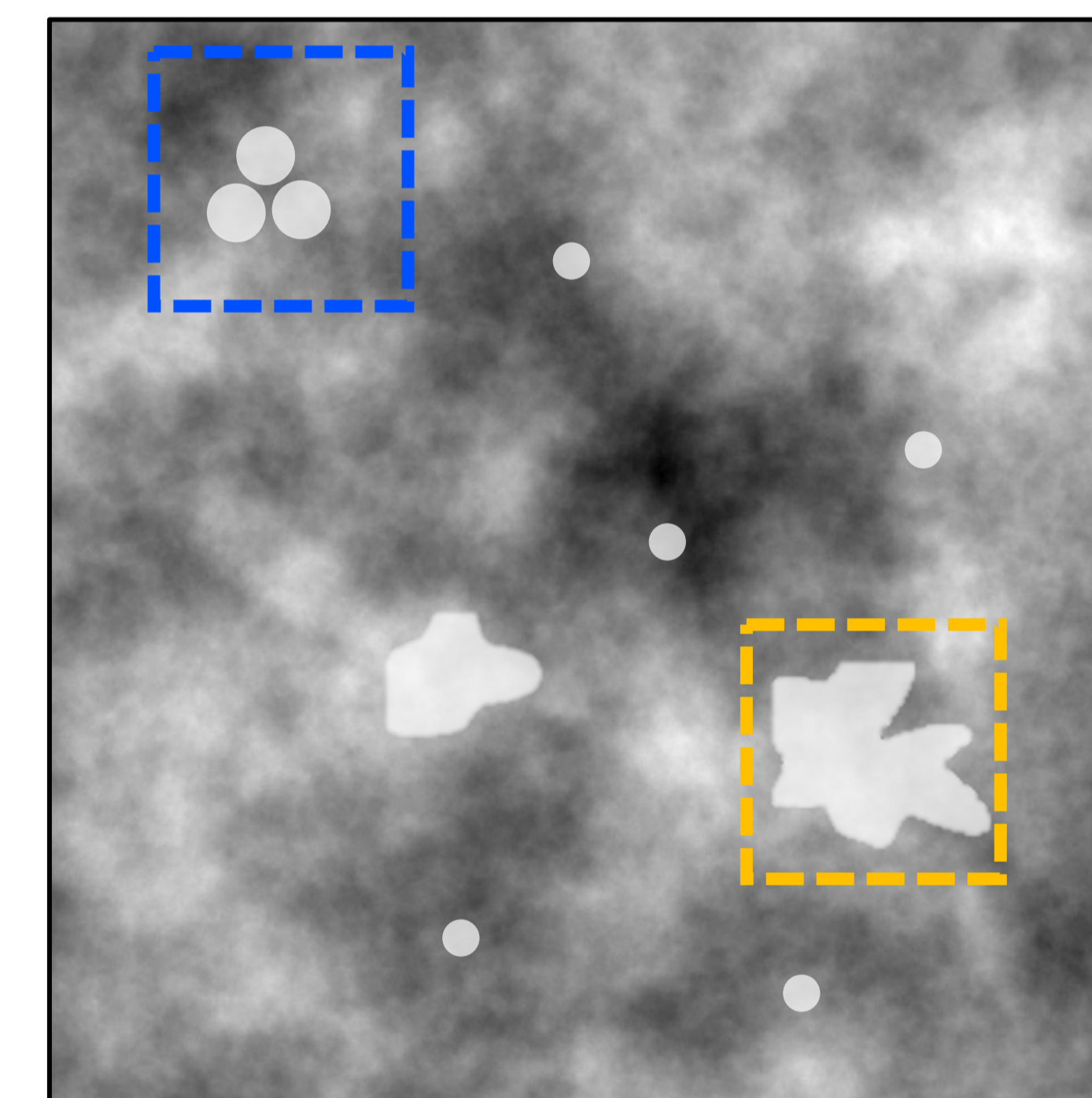
1. Single (Calc Only)



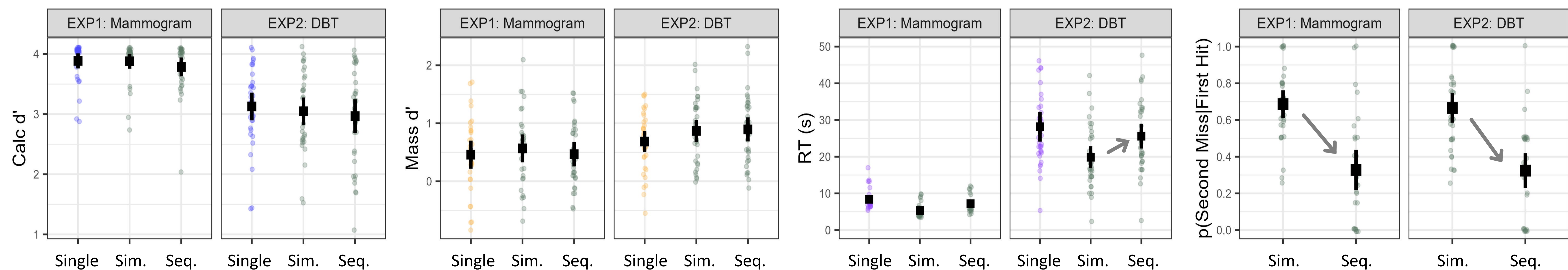
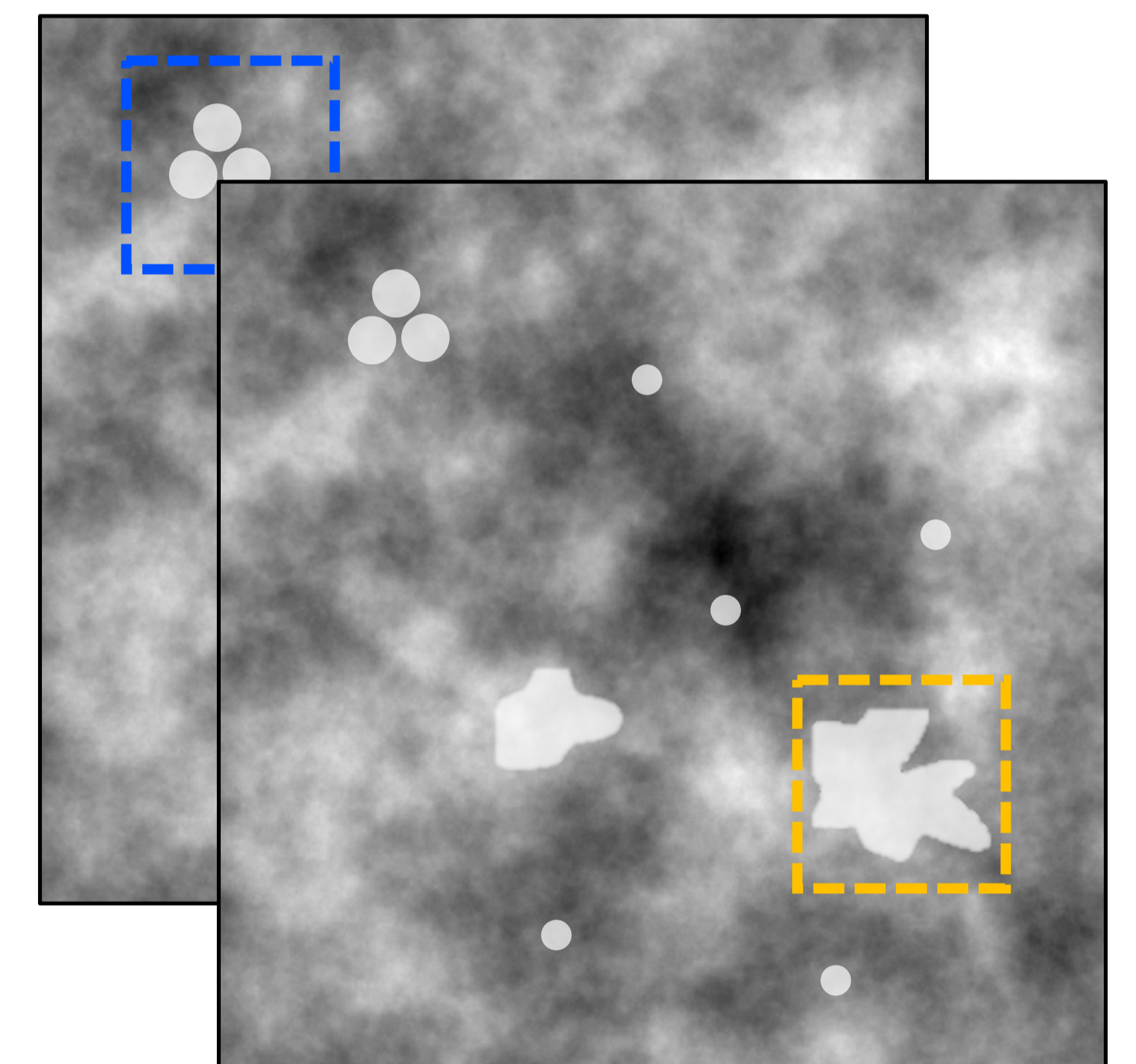
2. Single (Mass Only)



3. Simultaneous (Calc & Mass)



4. Sequential (Calc → Mass)



Glossary

Hybrid visual search^{1,2}
 Search tasks that have observers searching for multiple types of targets in a visual search display (e.g. Masses & Calcs)

Satisfaction of Search³
 A 2nd target is more likely to remain undetected after detection of the 1st.

Advantage Sequential search can reduce search errors when more than one target is present.

Disadvantage Sequential search is slower than simultaneous search.

Funding NIH CA207490

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Schneider & Shiffrin (1977). Controlled and automatic human information processing: I. Detection, search, and attention. *Psychol. Rev.*
 Wolfe (2012). Saved by a log: How do humans perform hybrid visual and memory search? *Psych. Sci.*
 Berbaum et al. (1990). Satisfaction of search in diagnostic radiology. *Invest Radiol.*