

Stimulus Identification from fMRI scans

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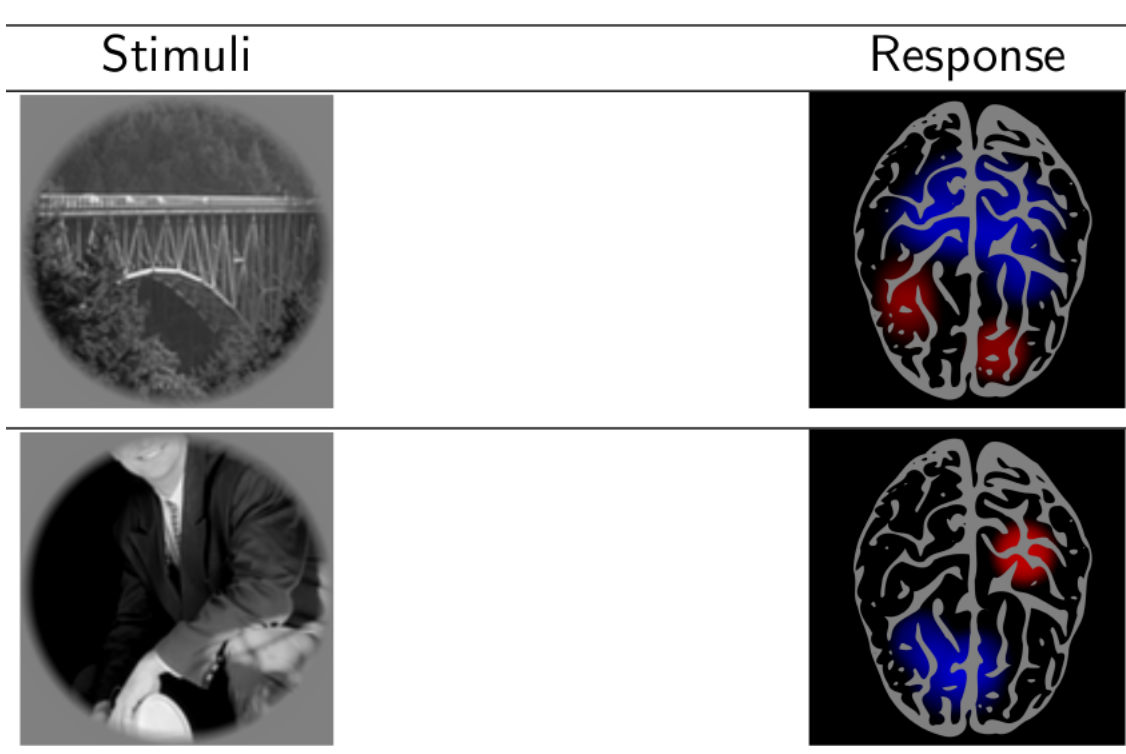
Stanford University

Setting

- Sequence of stimuli (pictures) shown at time $t = 1, \dots, T$
- Record subject's multivariate response $Y_t \in \mathbb{R}^p$
- Stimuli represented as *feature vector* $X_t \in \mathbb{R}^q$
- Linear model:

$$Y_{T \times p} = X_{T \times q} B_{q \times p} + E_{T \times p}$$

- E.g. Kay (2008)

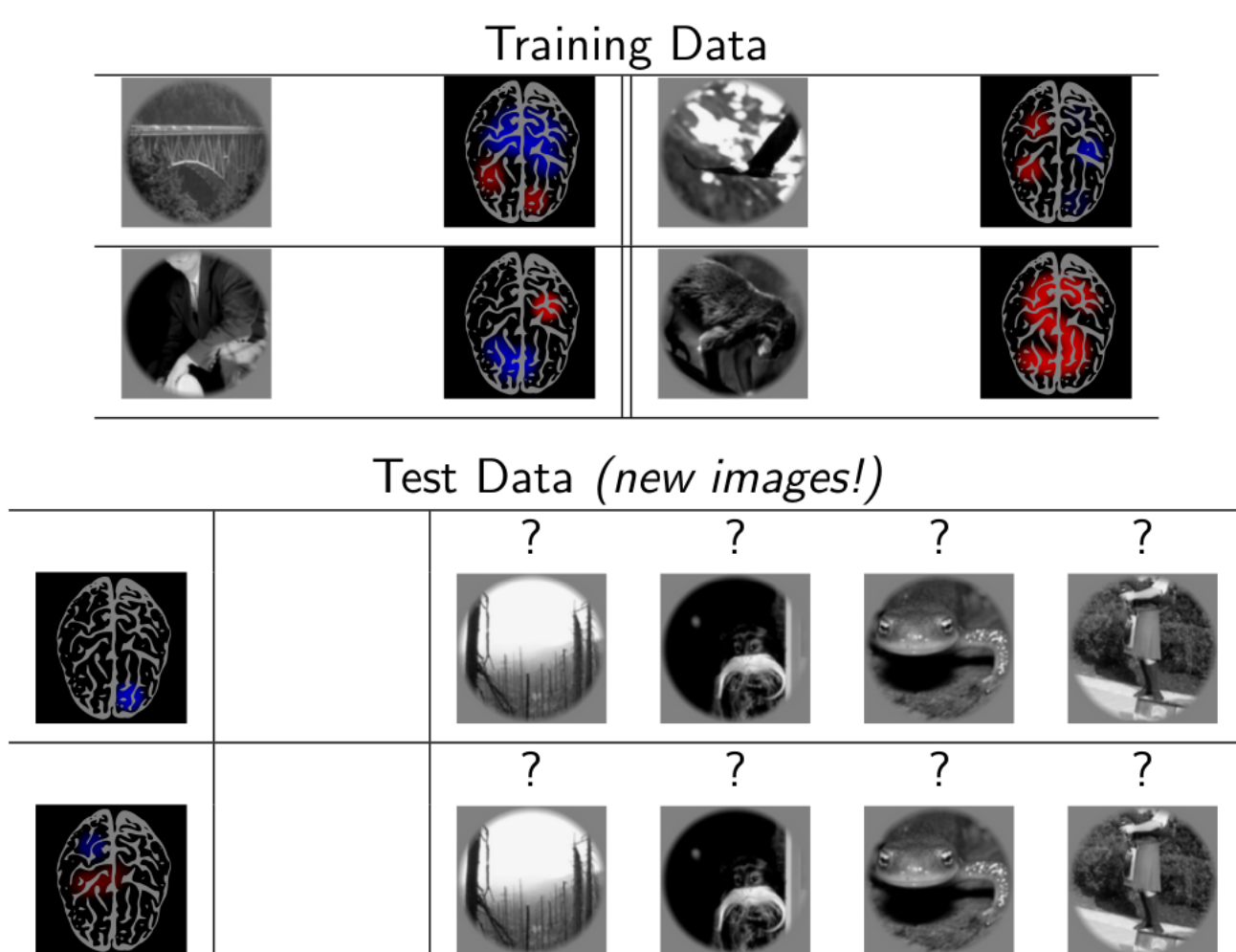


Identification

- Introduced in Kay (2008)
- Supervised learning task, validates the power of the linear model $Y = XB + E$
- Let S be a set of *new* stimuli (not in the training set) with features

$$\{x_1^{te}, \dots, x_\ell^{te}\}$$

- Scientist picks a stimulus from S and measures the subject's response y^*
- Can the statistician *identify* the stimulus from y^* ?



Objectives

-

Methods

The following materials were required to complete the research:

- Curabitur pellentesque dignissim
- Eu facilisis est tempus quis
- Duis porta consequat lorem
- Eu facilisis est tempus quis

The materials were prepared according to the steps outlined below:

- Curabitur pellentesque dignissim
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Conclusion

Nunc tempus venenatis facilisis. **Curabitur suscipit** consequat eros non porttitor. Sed a massa dolor, id ornare enim. Fusce quis massa dictum tor-tor **tincidunt mattis**. Donec quam est, lobortis quis pretium at, laoreet scelerisque lacus. Nam quis odio enim, in molestie libero. Vivamus cursus mi at *nulla elementum sollicitudin*.

Additional Information

Maecenas ultricies feugiat velit non mattis. Fusce tempus arcu id ligula varius dictum.

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References

Acknowledgements

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