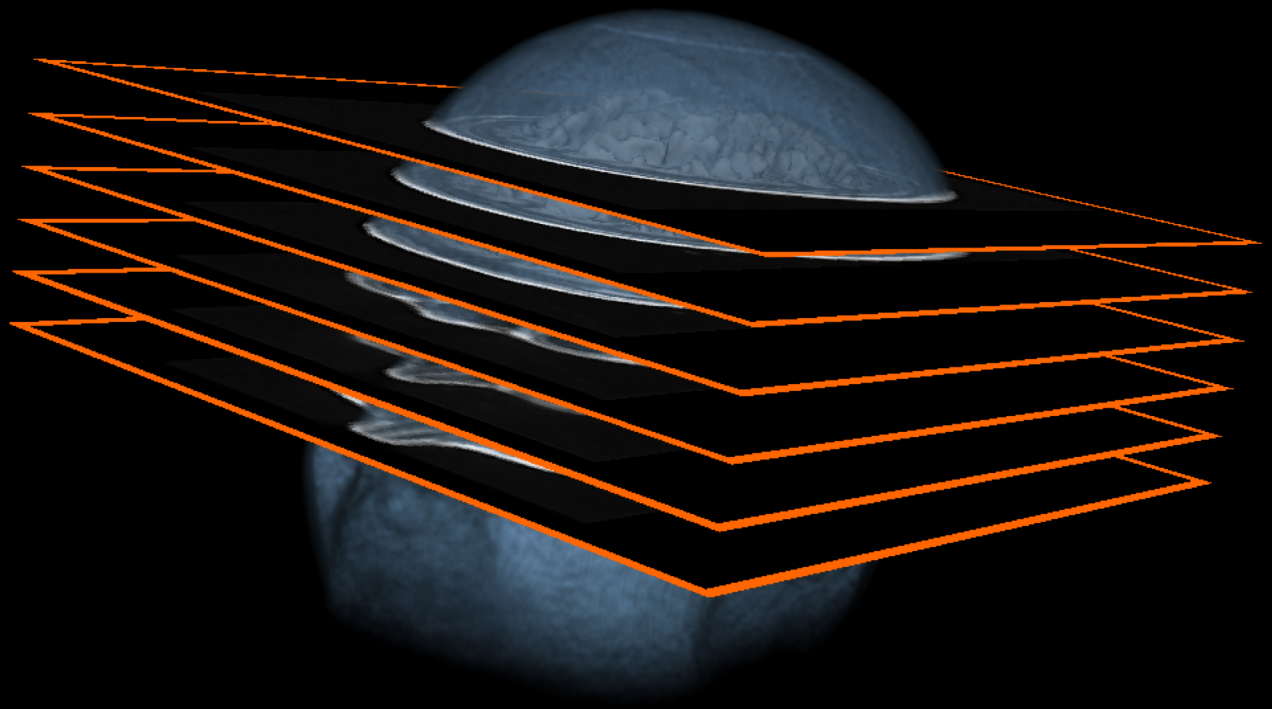
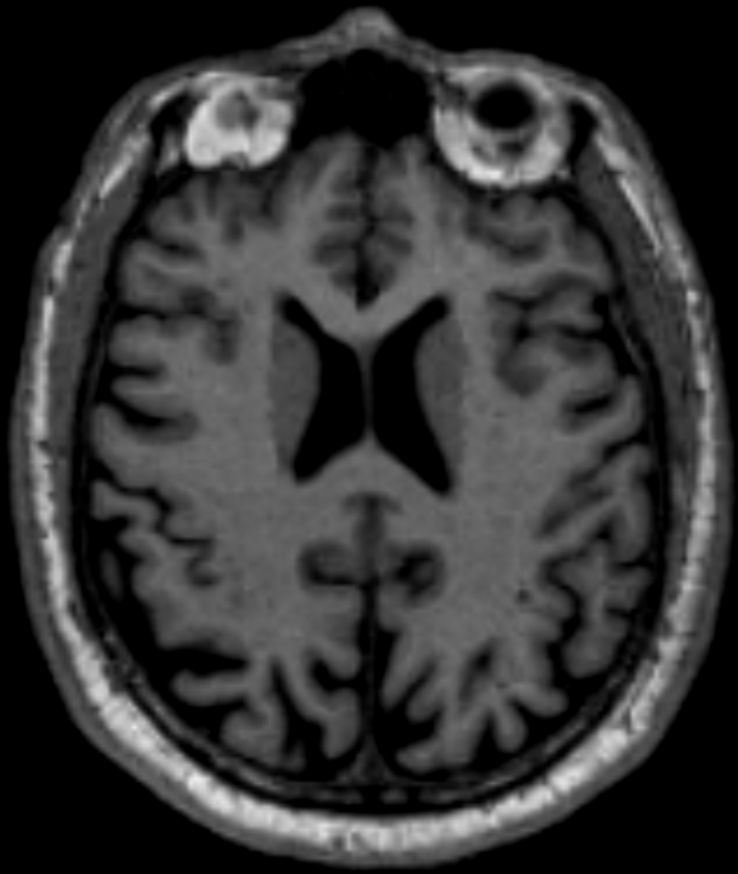
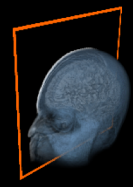
Medical Image Imputation

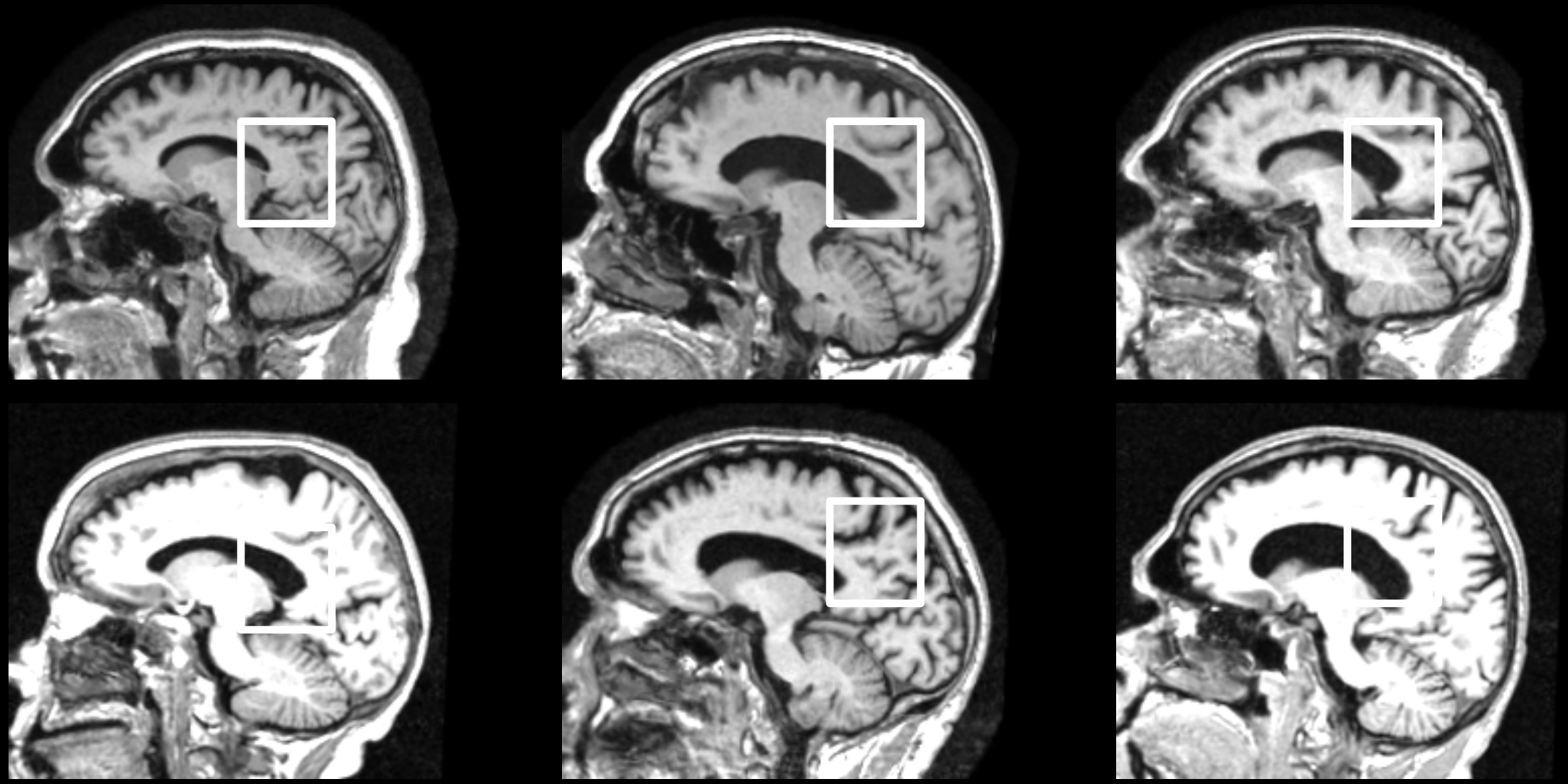
Joint work with Adrian Dalca, Ramesh Sridharan, Katie Bouman, Bill Freeman, Mert Sabuncu (Cornell), Natalia Rost (MGH)



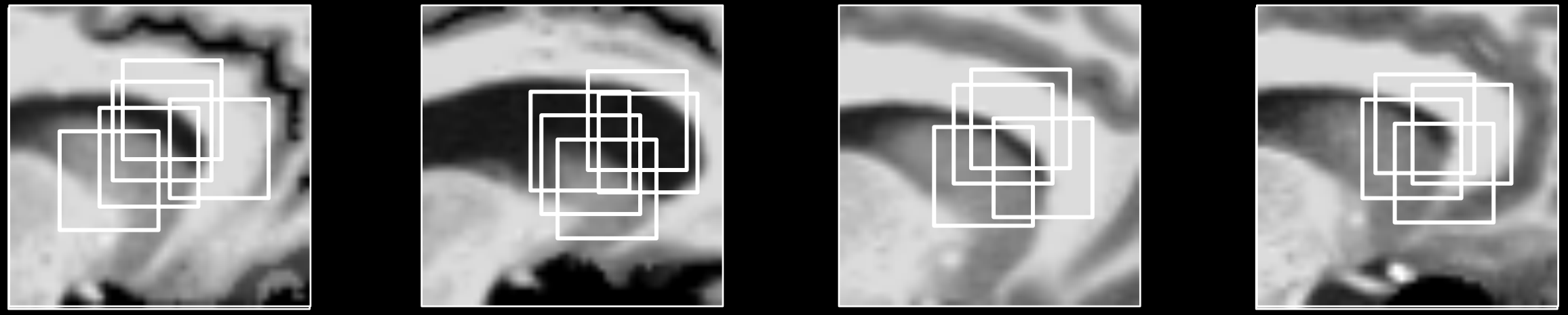




Goal: Generative Image Model



Local Image Structure



patch
samples

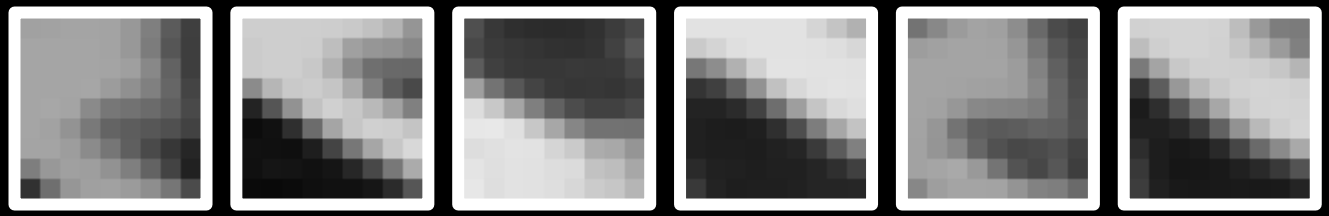
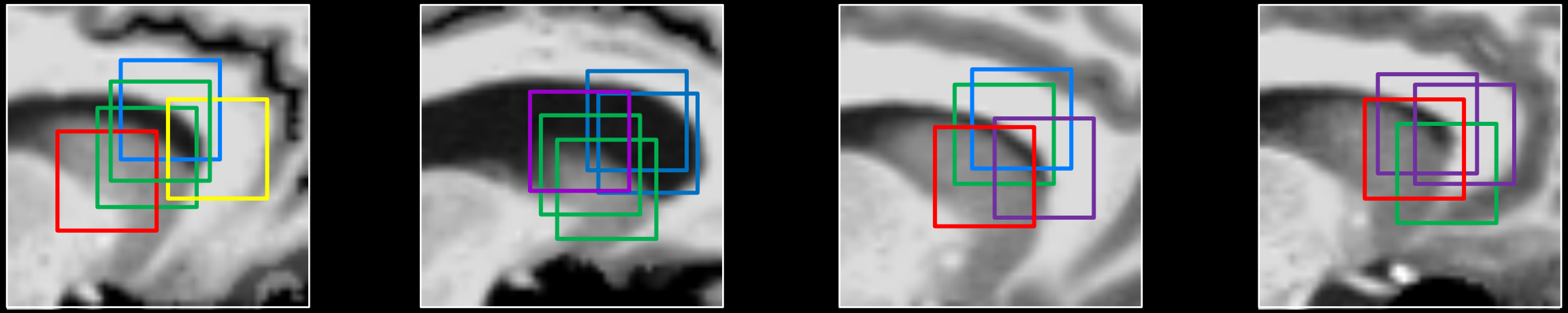
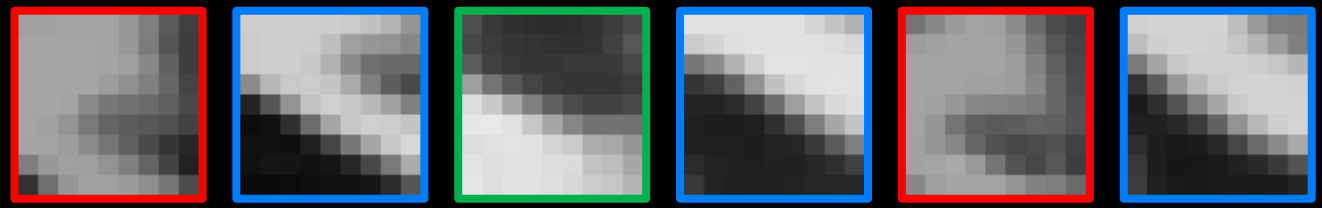
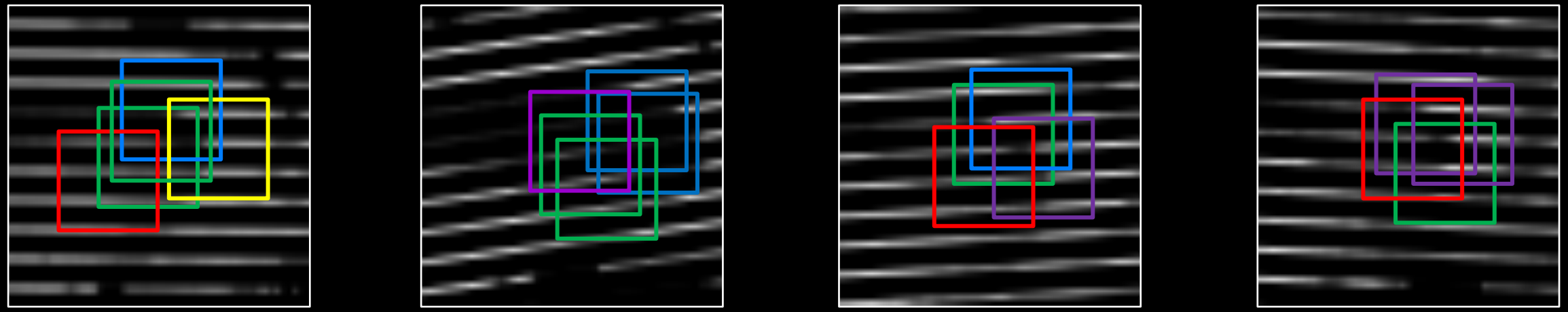


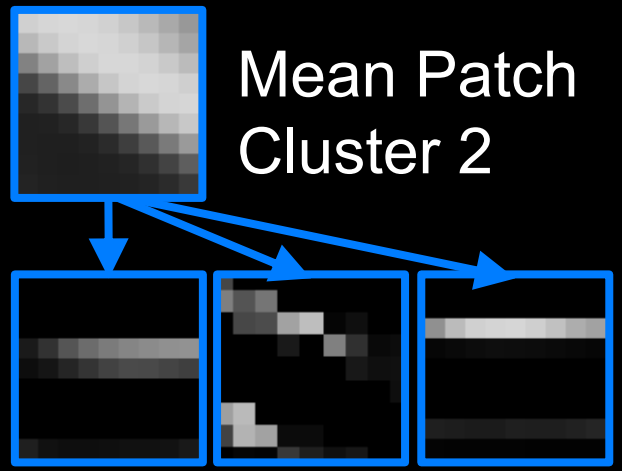
Image Patch Clustering





Sparse Image Patch Clustering





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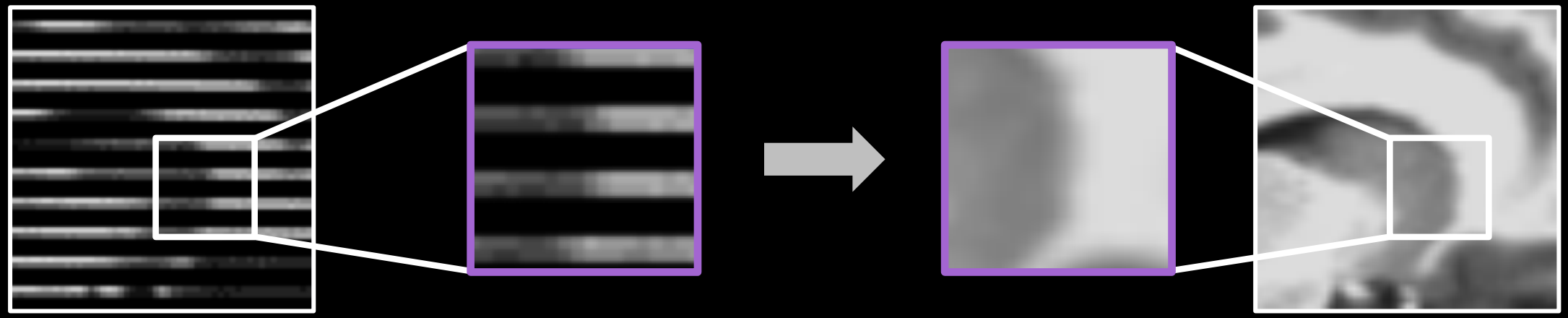
Imputation of a Sparse Scan



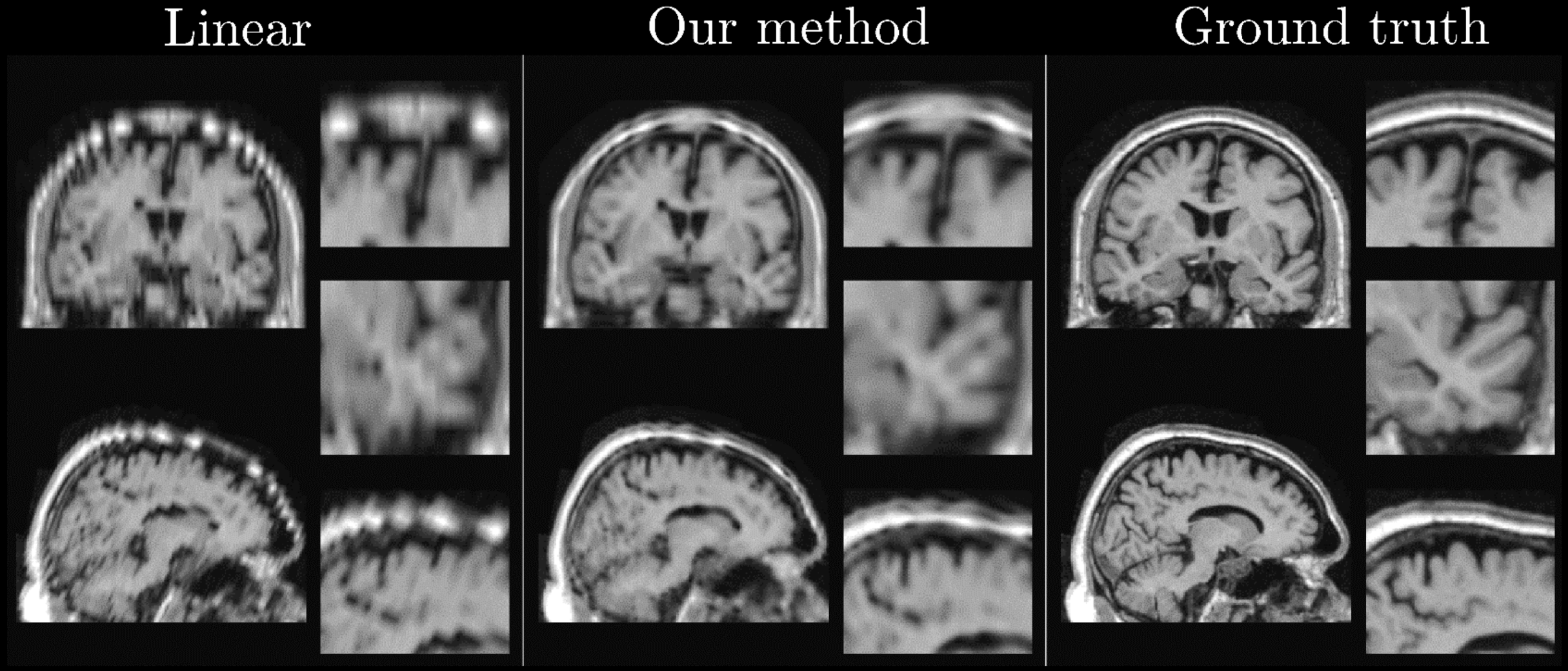
Input region

Cluster membership

Imputed patch

Imputed region

Example results



Conclusions

- Images contain crucial clinical information
- Our work enables clinical images to be used for research
  - Clinical insight
  - Evaluation of therapies

- Funding:
  - National Institutes of Health
  - Amazon Web Services (AWS)
  - Philips Co.
  - Wistron Co.
  - Suzhou Industrial Park (SIP)