



Human Brain Project

# Individual Brain Charting, a high-resolution fMRI dataset for cognitive mapping of the human brain



Individual Brain Charting  
<https://project.inria.fr/IBC/>  
Task SP2/WP2.1

The IBC team is:



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## Background and Motivations

- Existing task-fMRI data have small cognitive coverage
- High-resolution fMRI data for fine cognitive mapping
- Multi-modal: combining information between modalities

## Main Features of the Dataset

- High-resolution fMRI data (1.5mm)
- Task-wise dataset:
  - Many tasks
  - Fixed cohort - 13 healthy adults
  - Fixed environment
- Data from MRI-anatomical imaging:
  - High-resolution T1- and T2-weighted imaging
  - Tractography
  - Radial diffusion
  - Relaxometry

## First Release

- 12 tasks covering many psychological domains
- 59 independent conditions

HBP Knowledge Graph Data Platform



## Data Derivatives

- 6849 individual and unthresholded contrast maps
- Fetcher from Nilearn:



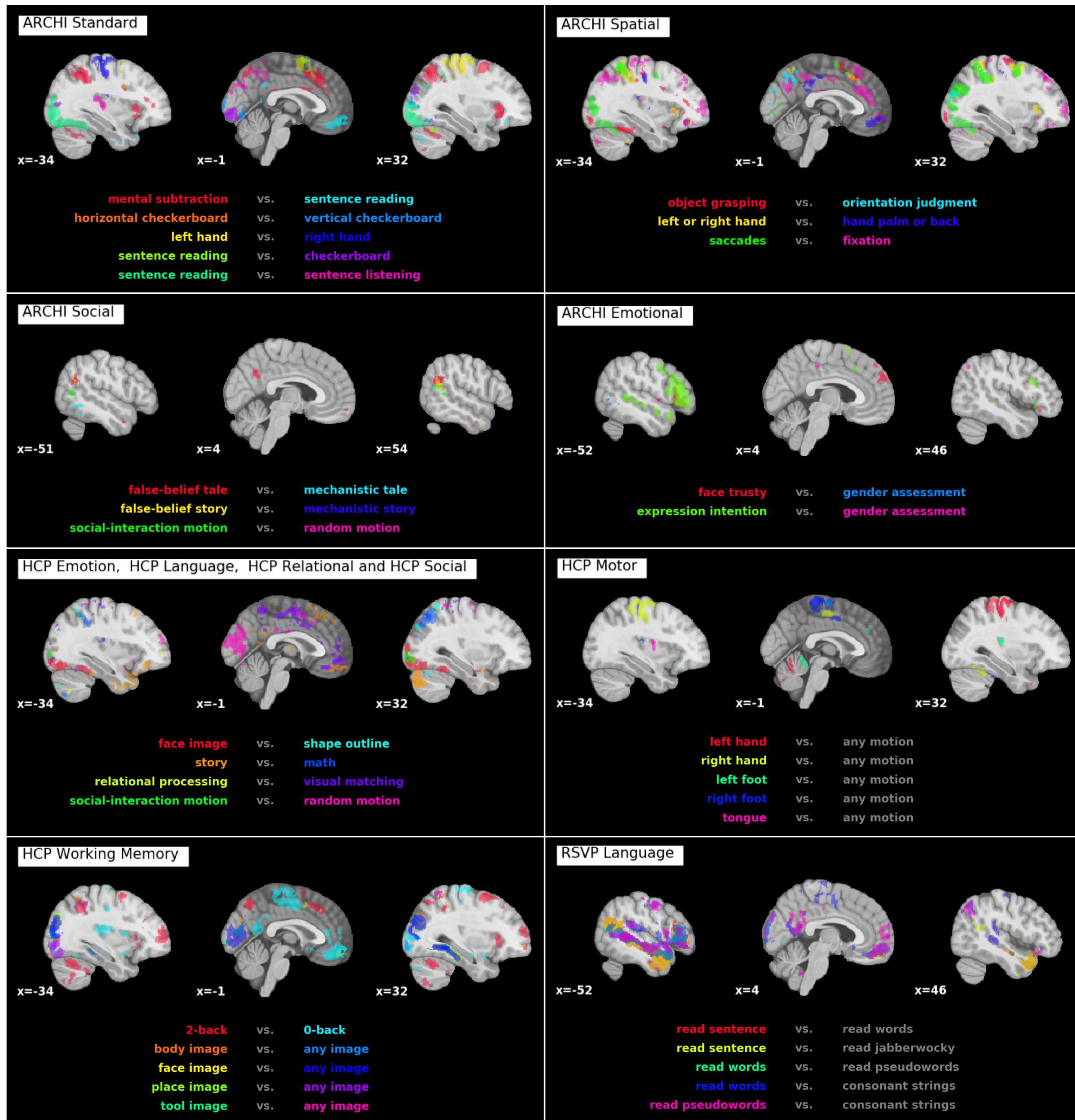
```
from nilearn import datasets
ibc = datasets.fetch_neurovault_ids(
    collection_ids=[4438])
```

### Data-descriptor paper:

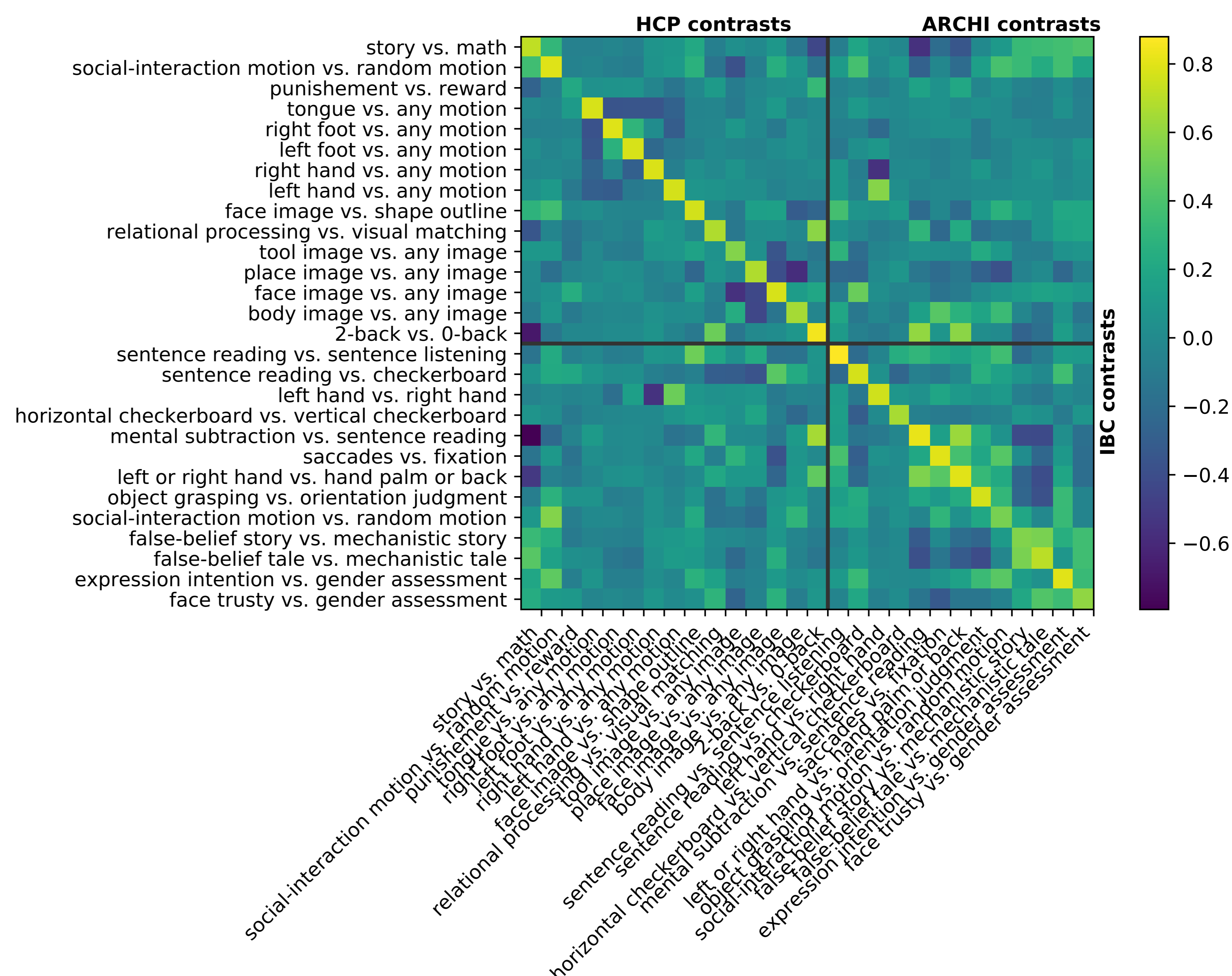
Pinho, A. L. et al. (2018). Individual Brain Charting, a high-resolution fMRI dataset for cognitive mapping. *Sci. Data*, 5, 180105.

## Future Releases

- Next release, featuring the visual system, is coming soon!
  - Passive-Watching of Naturalistic Scenes
  - Retinotopy
  - Movie Watching
- Other releases:
  - Anatomical data + Resting-State
  - Chronesthesia, Positive-Incentive Value, Theory-of-Mind, Visual Short-Term Memory, Enumeration, Self-Reference Effect, Tonotopy and more...



## IBC results reproduce ARCHI and HCP results.



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