

OASIS - overview

- Structural MRI data from Washington University Alzheimer's Disease Research Center
- Set 1: Cross-Sectional (2007)
 - 416 subjects across adult lifespan (18-96)
 - 100 CDR>0
- Set 2: Longitudinal (2010)
 - 150 subjects (>60)
 - 2-4 sessions/subject, spaced ~1yr apart
 - 14 “converters” (progressed to CDR>0)
- Multiple T1s (3-4) per session
- Minimal demographics (age, gender, CDR, MMSE)

OASIS – data preparation

- Data pulled from larger ADRC database.
- Collected without explicit intention to share.
- Processing included defacing, manual QC review, atlas-registration, freesurfer volumetrics.
- Extremely open data use terms
- Described in two peer-reviewed papers.
- Distributed via XNAT-based web site (and several additional channels)

OASIS - usage

- 150+ citations including scientific findings and many methodology papers.
 - Simões, et al. (2014) Classification and localization of early-stage Alzheimer's disease in magnetic resonance images using a patch-based classifier ensemble. *Neuroradiology*.
 - Zimmer, et al. (2014) A framework for optimal kernel-based manifold embedding of medical image data. *Computerized Medical Imaging and Graphics*.
 - Wang, et al. (2014) Aging Influence on Gray Matter Structural Associations within the Default Mode Network Utilizing Bayesian Network Modeling. *Frontiers in Aging Neuroscience* 6.
 - Bruner, et al. (2014) Functional craniology and brain evolution: from paleontology to biomedicine. *Frontiers in Neuroanatomy* 8.
 - Fjell, et al. (2014) Accelerating Cortical Thinning: Unique to Dementia or Universal in Aging?. *Cerebral Cortex* 24:4919-934.
- Preceded ADNI
- Pairs well with ADNI

HCP - overview

- 1200 “normal, healthy” 22-35 year olds
- ~300 sibships, including twin pairs
- Very high quality 3T structural, resting state fMRI, task fMRI, and diffusion imaging (4+ hours of acquired data).
- Also MEG and 7T imaging.
- Extensive behavioral testing using standardized instruments.
- Genetic data at conclusion of subject enrollment.

HCP – data preparation

- Data collected with explicit intention to share (like ADNI)
- All data collected on a single scanner (like OASIS).
- Processing pipelines include defacing, QC review, preprocessing, and surface generation.
- Open access data use terms + restricted use for sensitive data (e.g. drug use history)
- Series of descriptive peer-reviewed papers in special issue of NeuroImage.
- Distributed via XNAT-based web site (and additional channels)

HCP - usage

- First 500 subjects released in Spring 2014.
- Additional releases planned (900 subject, 1200 subject, 7T) over next 18 months.
- Follow-on HCP studies underway (e.g. lifespan).
- Scientific and methodological research is ongoing and active.

HCP – “Connectomes of Disease” and “Connectome Coordination Facility”

- Connectomes Related to Human Disease (U01)
 - Use HCP acquisition and behavioral protocols
 - “The purpose... is to expand the HCP data to disease/disorder cohorts”
 - Data must be submitted to the CCF
- Connectome Coordination Facility (R24)
 - Maintain existing HCP database
 - Assist/advise U01 recipients on study design and data acquisition
 - Harmonize and distribute data obtained by U01 recipients