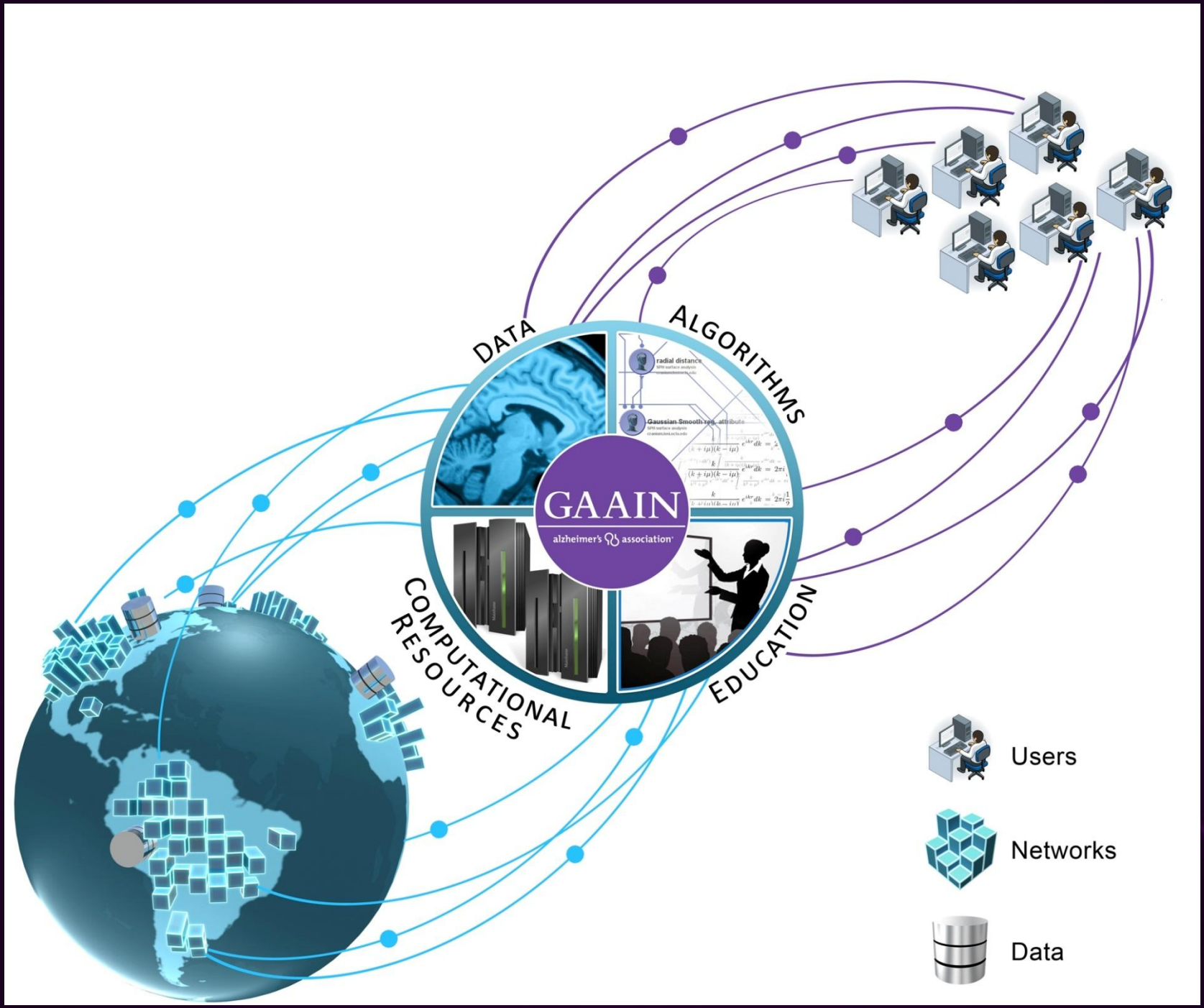
GAAIN

Global Alzheimer's Association Interactive Network

Arthur W. Toga


DATA
ALGORITHMS
COMPUTATIONAL RESOURCES
EDUCATION
GAAIN
alzheimer's association
Users
Networks
Data

What is GAAIN?

A global cooperative of sharing, investigation and discovery for Alzheimer's Disease Research

- Data federation
- Cloud-enabled infrastructure
- Global network of analysis and workflow tools

SAB Members

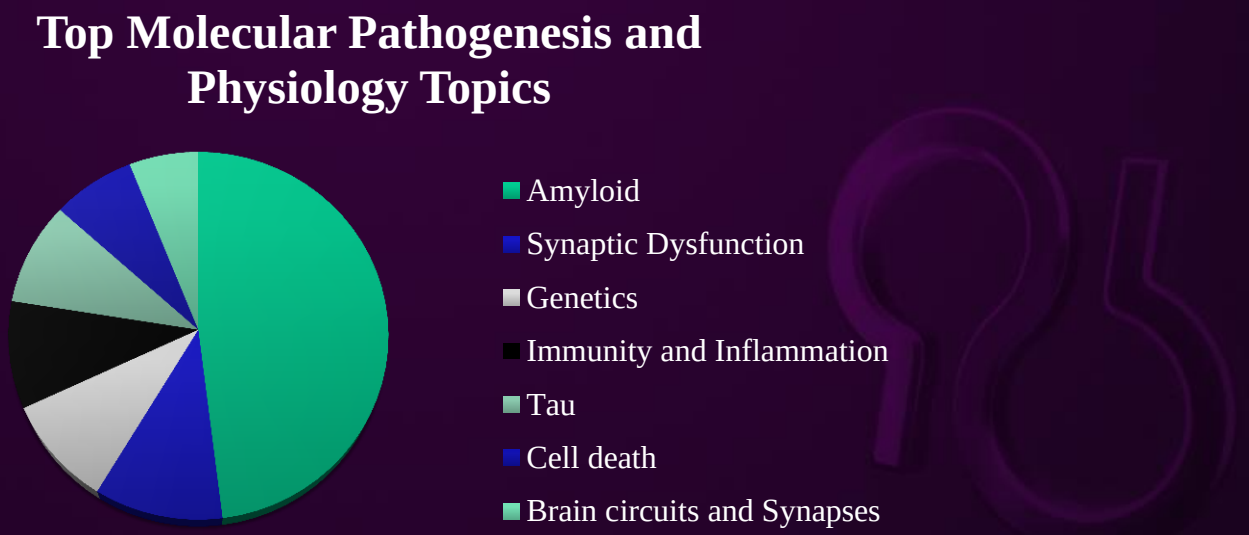
- Paul Aisen, UCSD
- Neil Buckholtz, National Institutes of Health
- William Klunk, University of Pittsburgh
- Enrique Castro deLeon, Intel
- Alon Halevy, Google
- Harry Johns, Alzheimer’s Association
- William Thies, Alzheimer’s Association

Primary Components

- Alzheimer's Disease Research Registry
  - Catalog of AD research conducted in the US and internationally
  - Interactive Search and Exploration Tools
- GAAIN Research Data Repository
  - Federated Database
  - Analysis/Workflow Tools
  - Compute Resources

GAAIN Registry Features

- Publicly accessible website for:
  - Search
  - Research portfolio analysis
  - Analyzing trends & gaps in AD research



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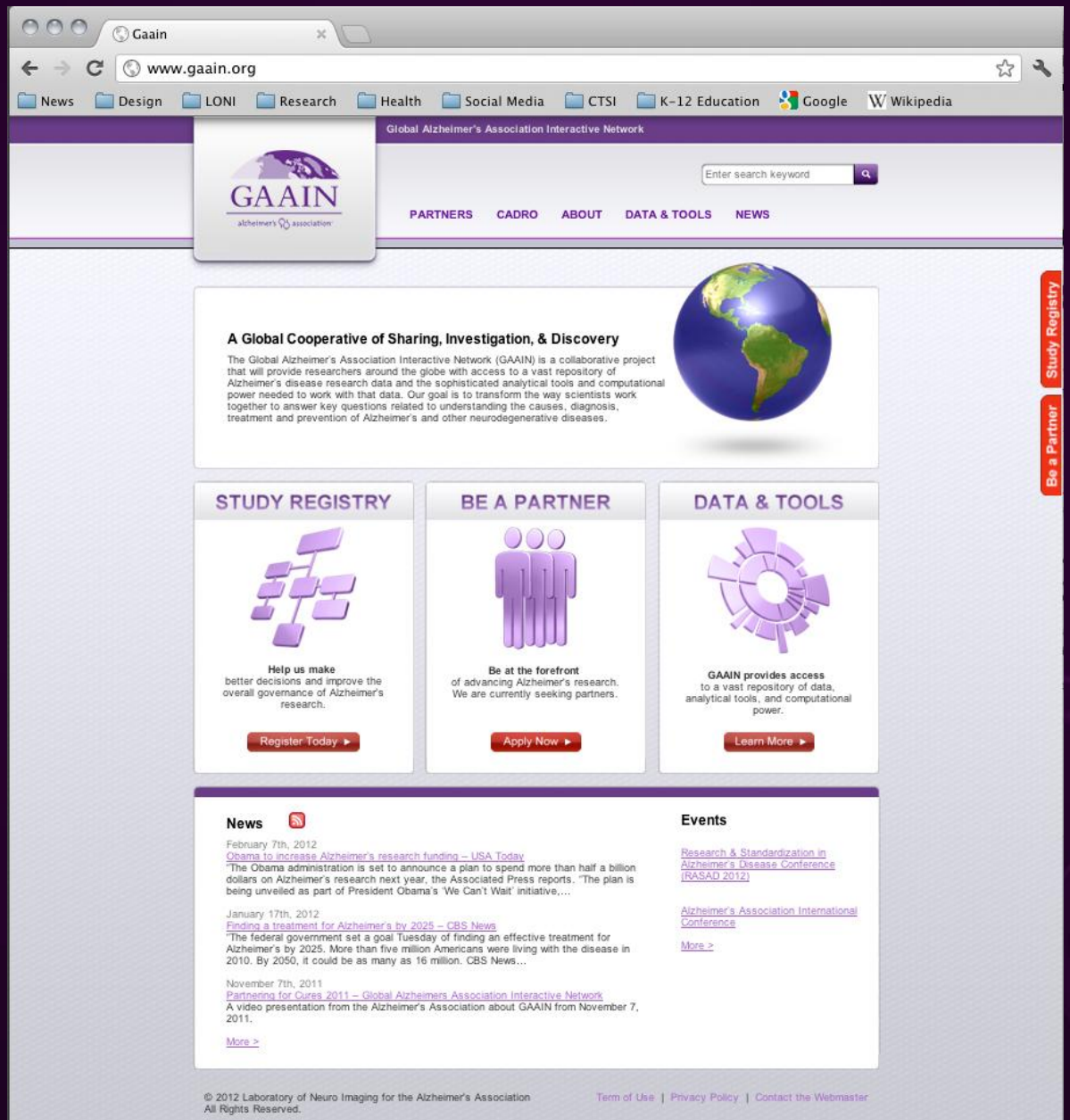

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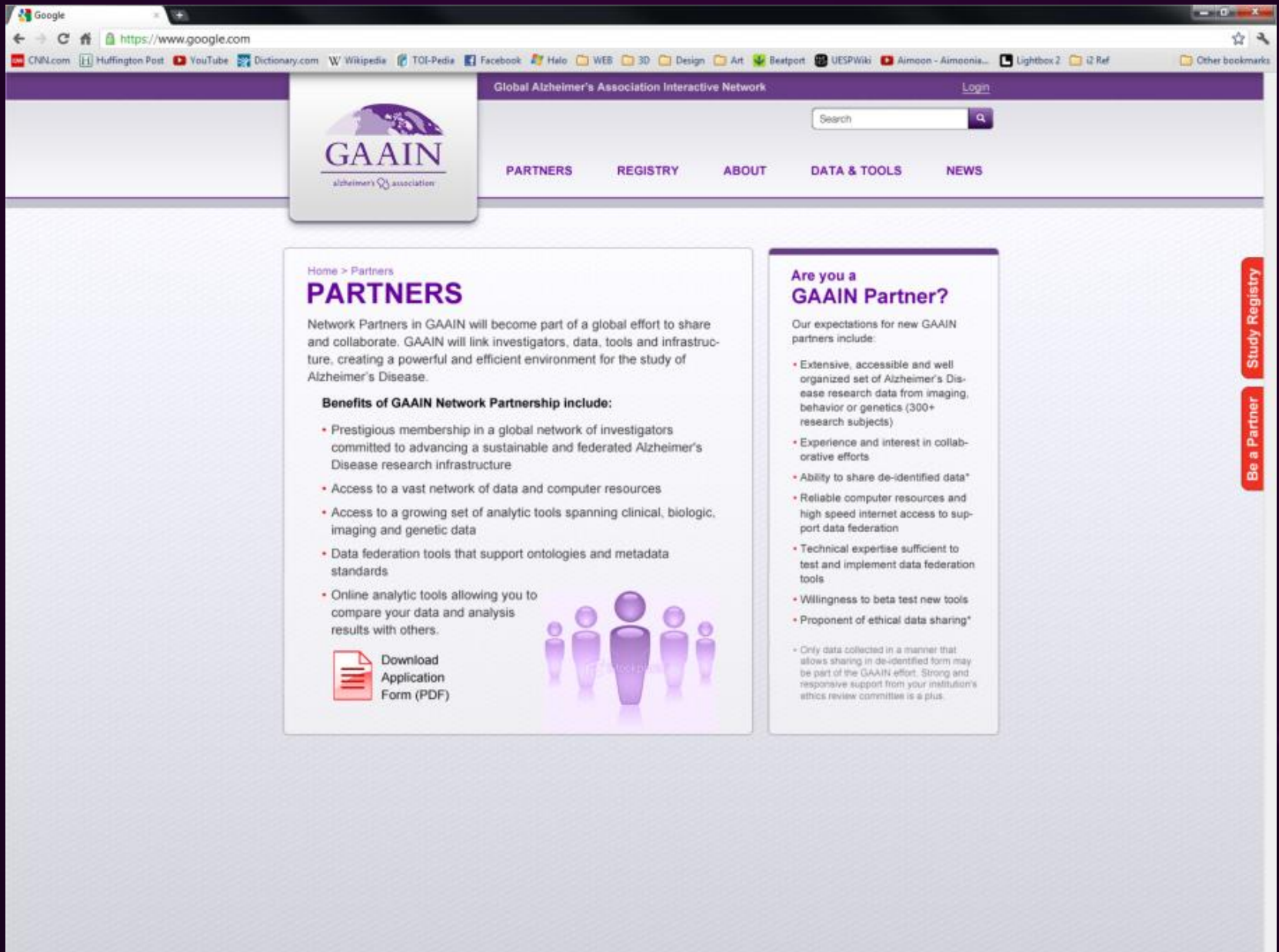


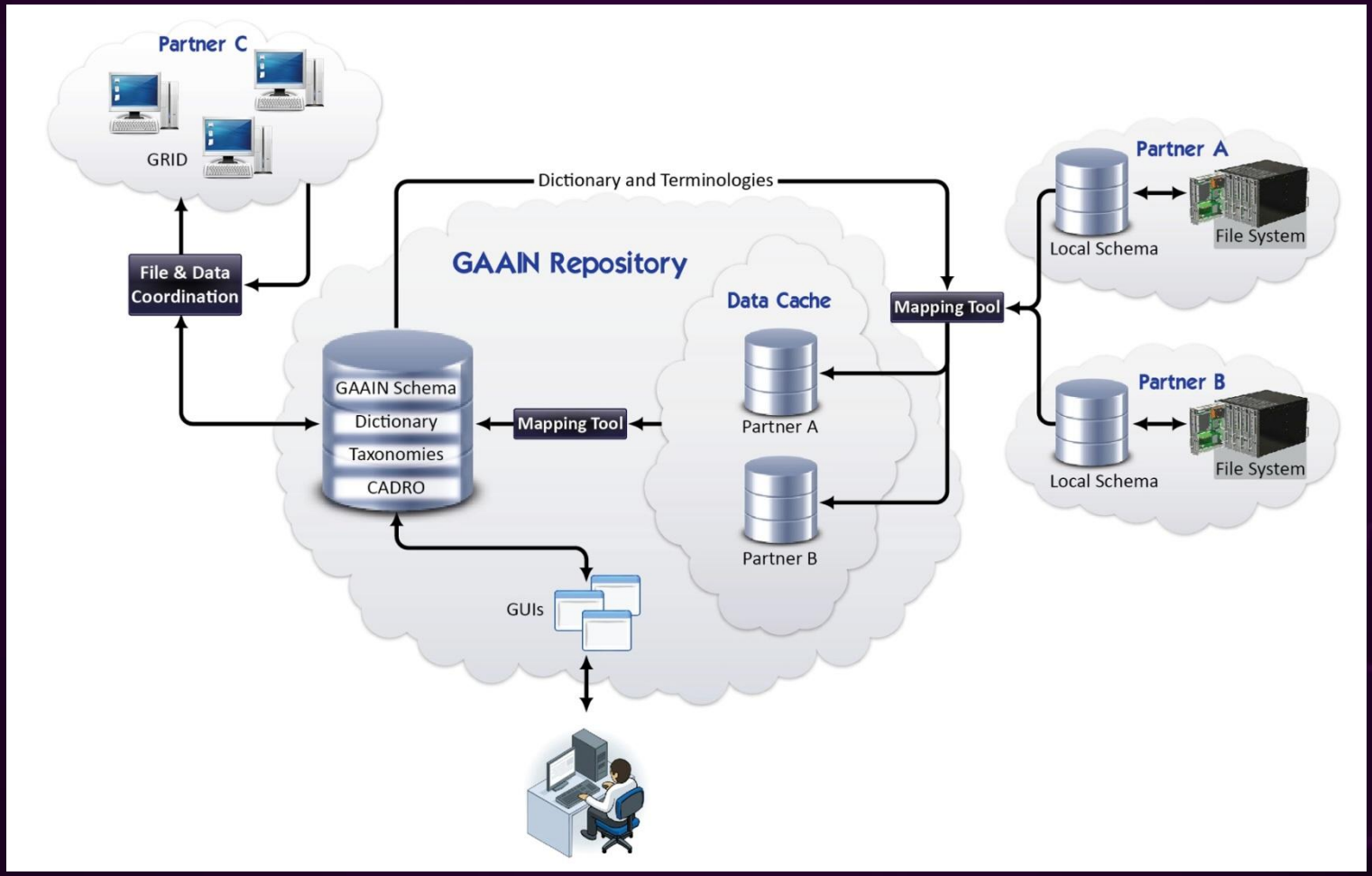
GAAIN Federated Data Repository

- Global network of committed investigators
- Vast network of data and compute resources
- Data federation tools
- Ontologies and metadata standards provide semantic framework
- Analytic tools for comparison of data across studies

GAAIN Challenges

- Subject privacy protection across international boundaries
- Complexity from cross-disciplinary data collection and analysis
- Creating robust and compelling tools for searching, visualizing, sharing and analyzing the federated data
- Semantics, ontologies, etc.

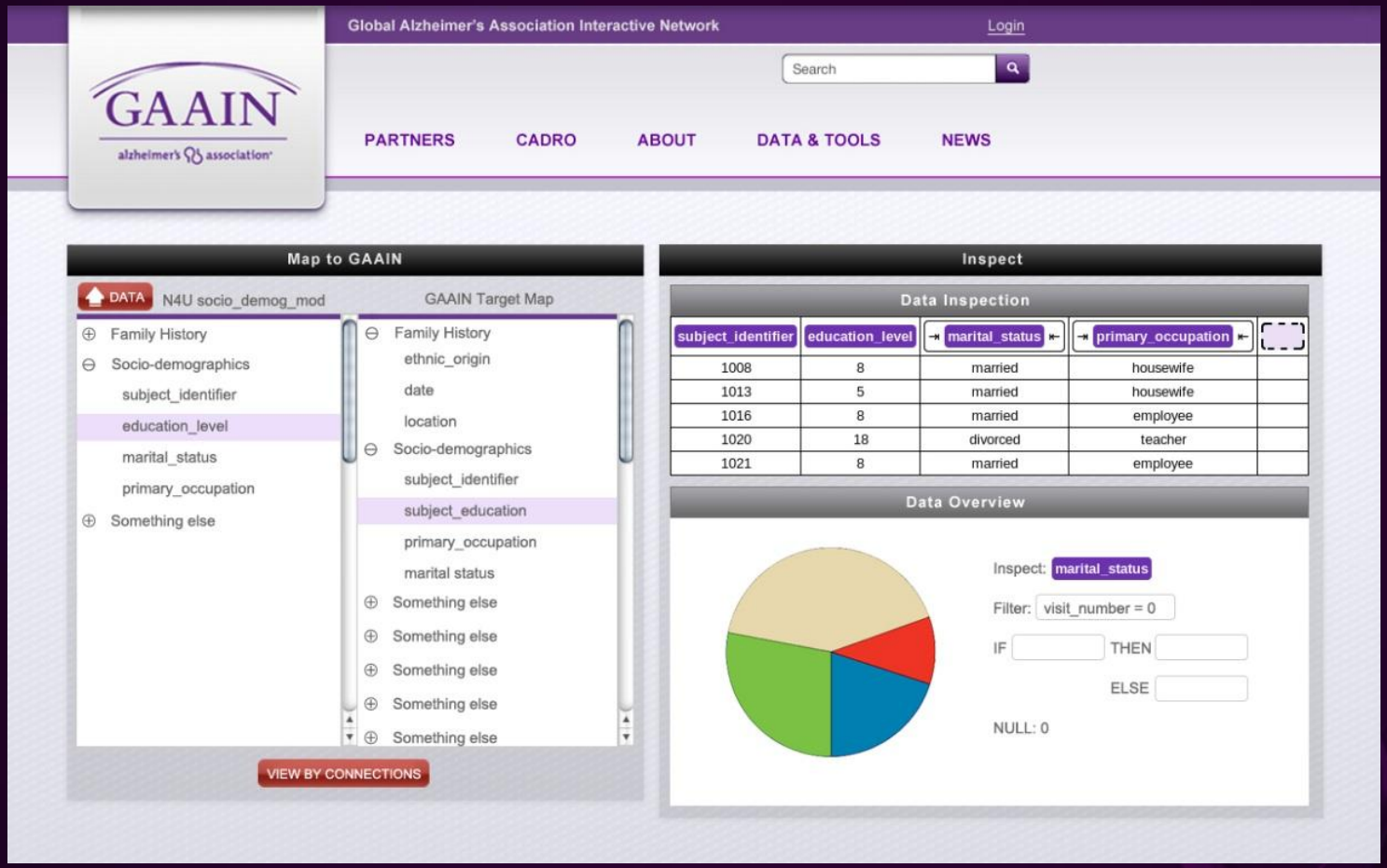
Data Federation



Controlled Terminologies

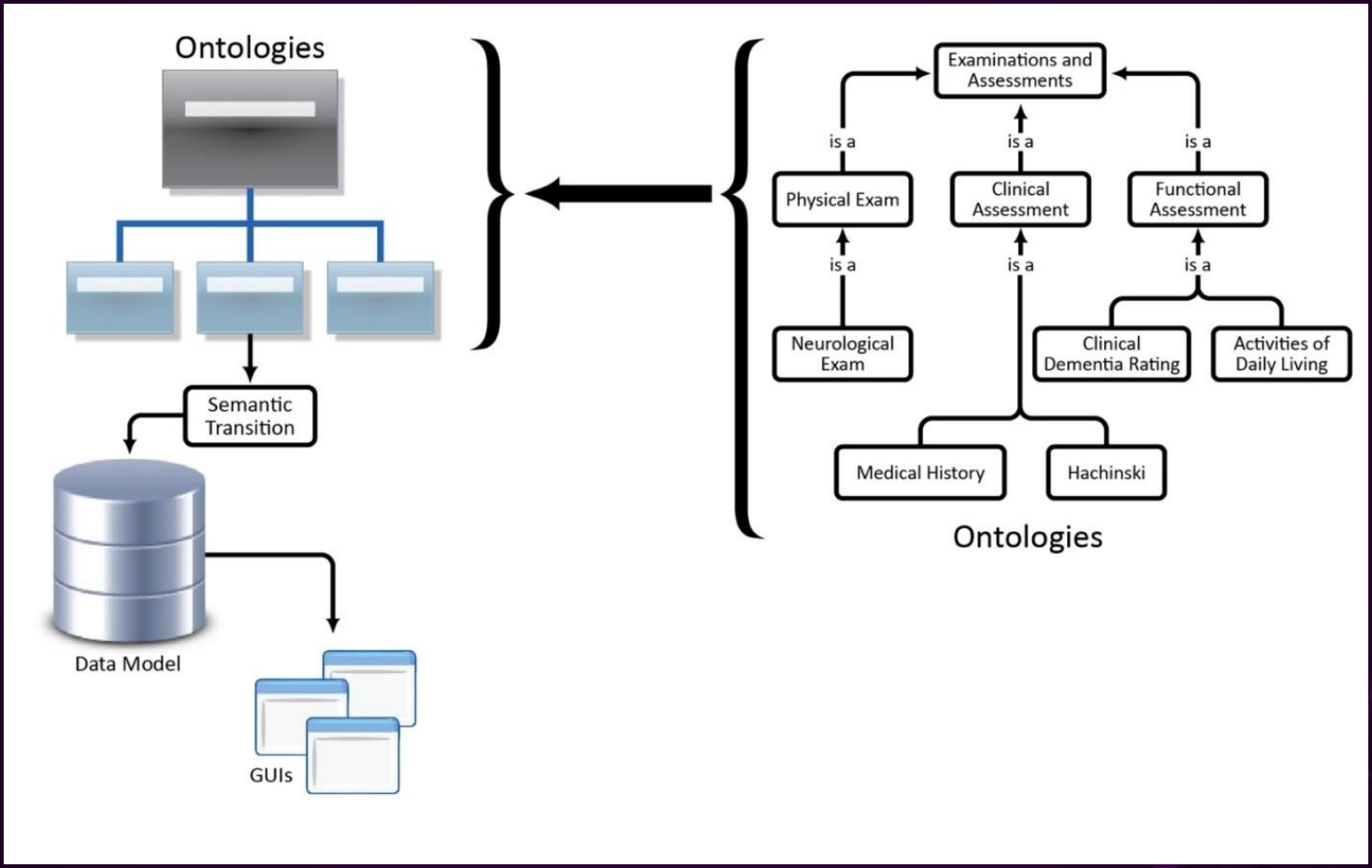
- Controlled terminologies enable mapping of heterogeneous data into common terms
  - Supports searching across databases
  - Supports data integration
- CDISC Terminologies (Clinical Data Interchange Standards Consortium Terminology)
  - STDM: Study/Trial Design Model
  - ADaM: Basic Data Structure for Tome-to-Event Analysis
  - CDASH: Basic recommended data collection fields for 18 domains
  - SEND: Standard for Exchange of Nonclinical Data

Mapping Tool



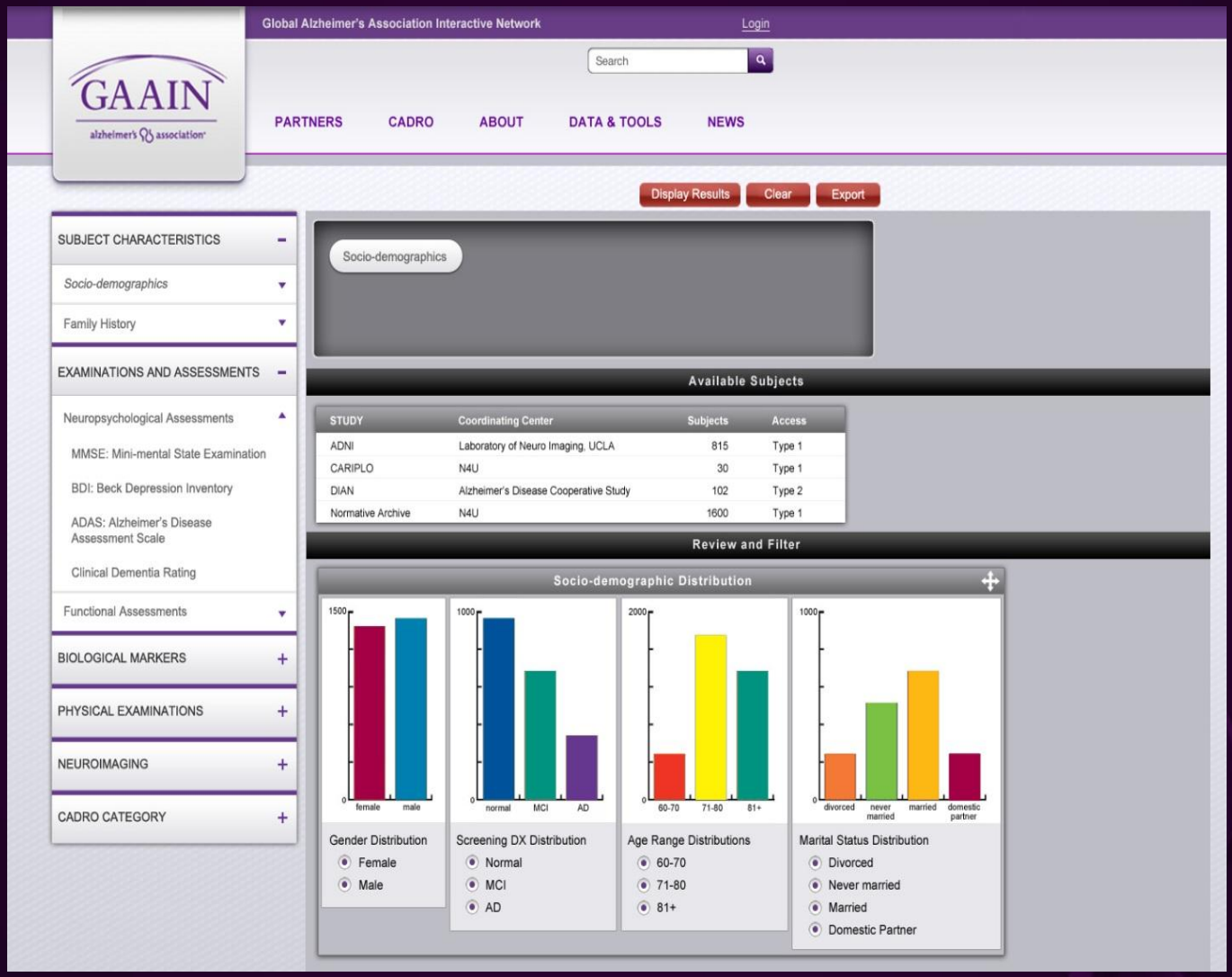
- View, inspect and transform source data
- View and inspect target schema and controlled terminologies

Ontology-guided Search



Questions like, “How many subjects are there with functional assessments and imaging?” can be asked .

Search: Distribution



Drag and drop individual items into work area to see distribution of values and number of subjects having data available. Study-level access levels shown.

Search More

Drag and drop minor or major categories into work area to see inventory of information types available from each study.