



BD Hubs: Midwest: “SEEDCorn: Sustainable Enabling Environment for Data Collaboration”

Midwest Big Data Hub

Accelerating the Big Data Innovation Ecosystem

One of four Big Data Regional Innovation Hubs (BD Hubs) funded by the National Science Foundation through award #1550320

The Advanced Computational Neuroscience Network

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The human brain



1400g / 3 lbs

www.brainmuseum.org

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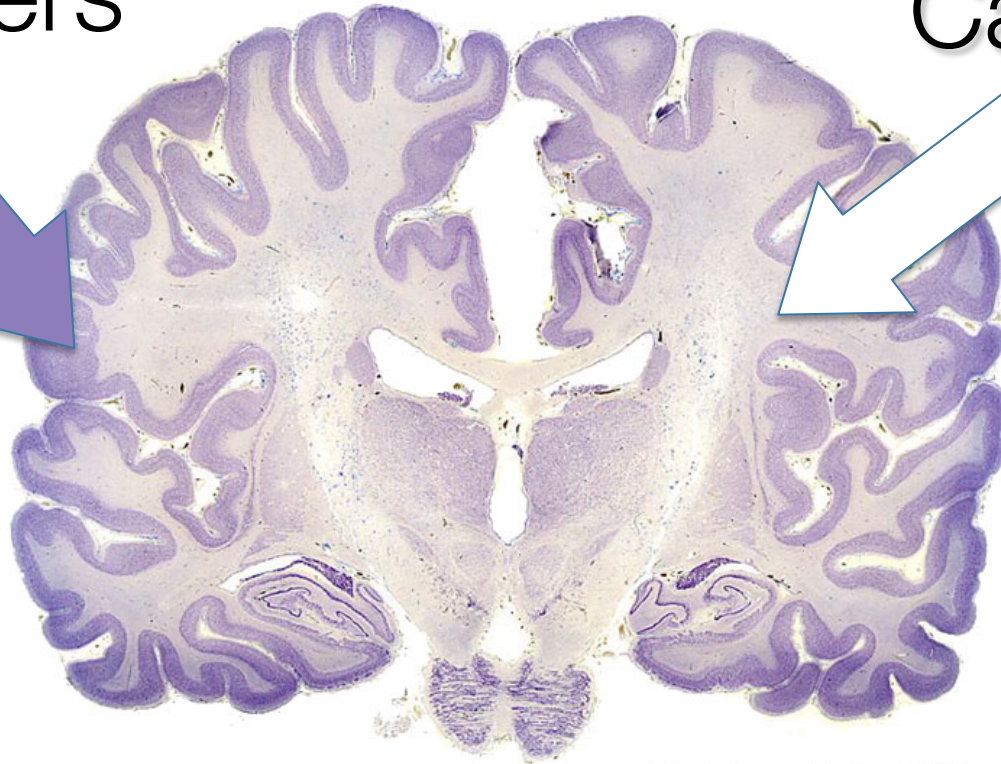
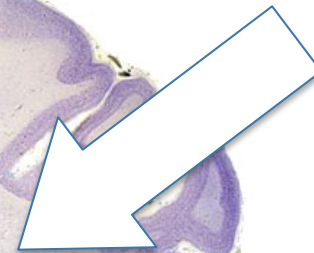
The internet of the brain

Gray and white matter

Computers



Cables



- 1 cm

www.brainmuseum.org

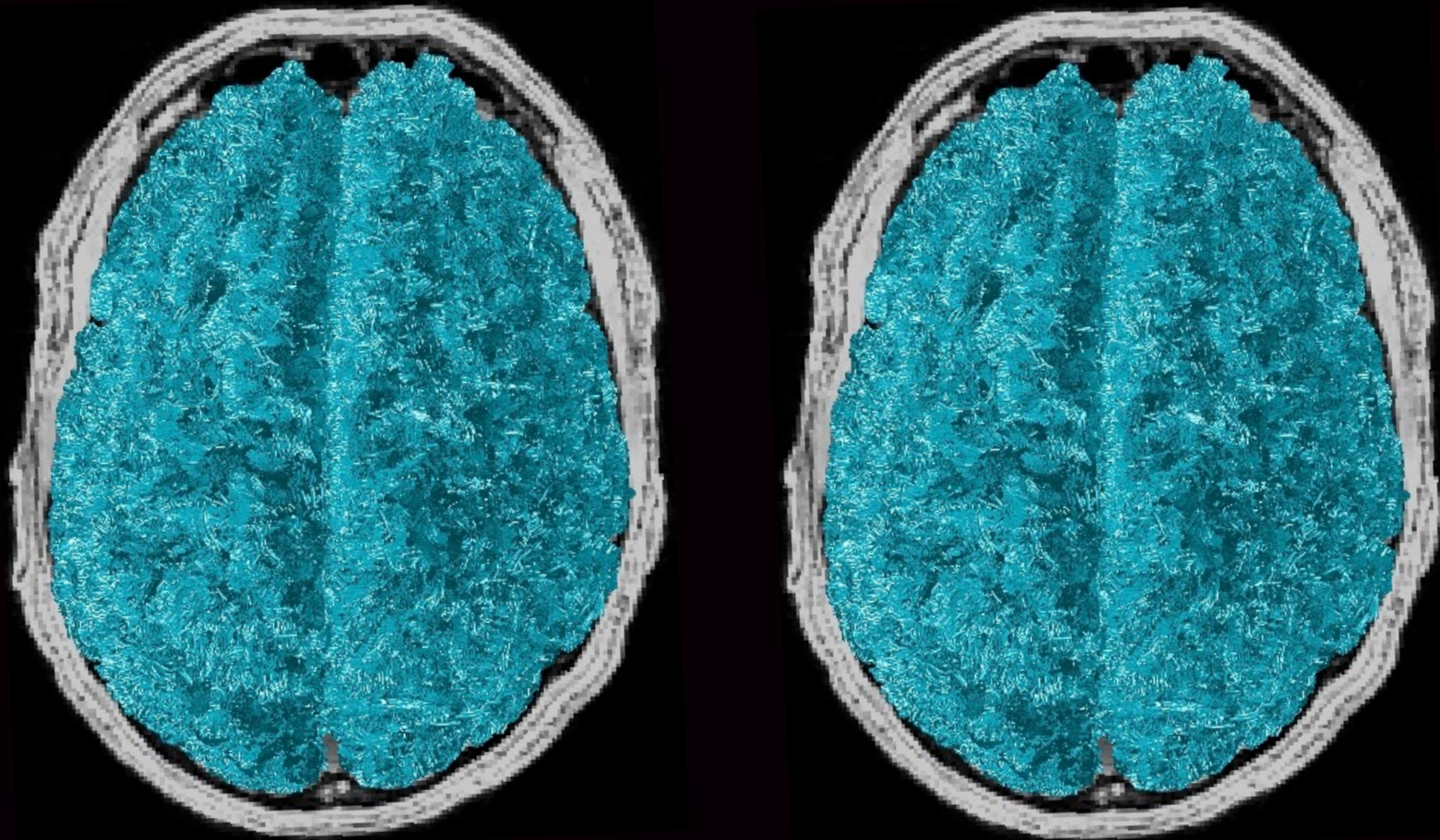
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In-vivo digital brain science

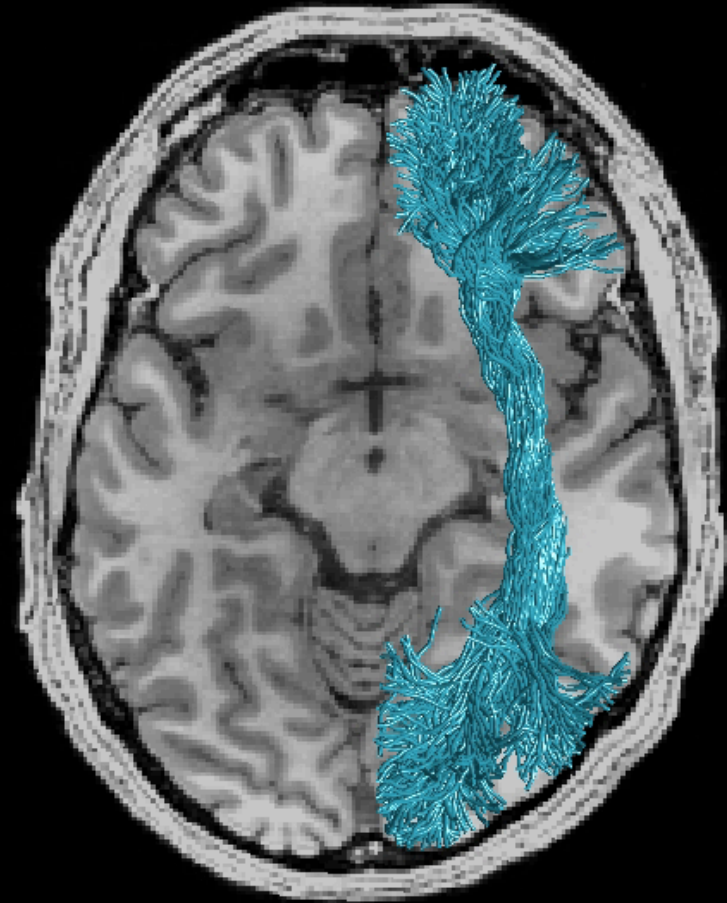
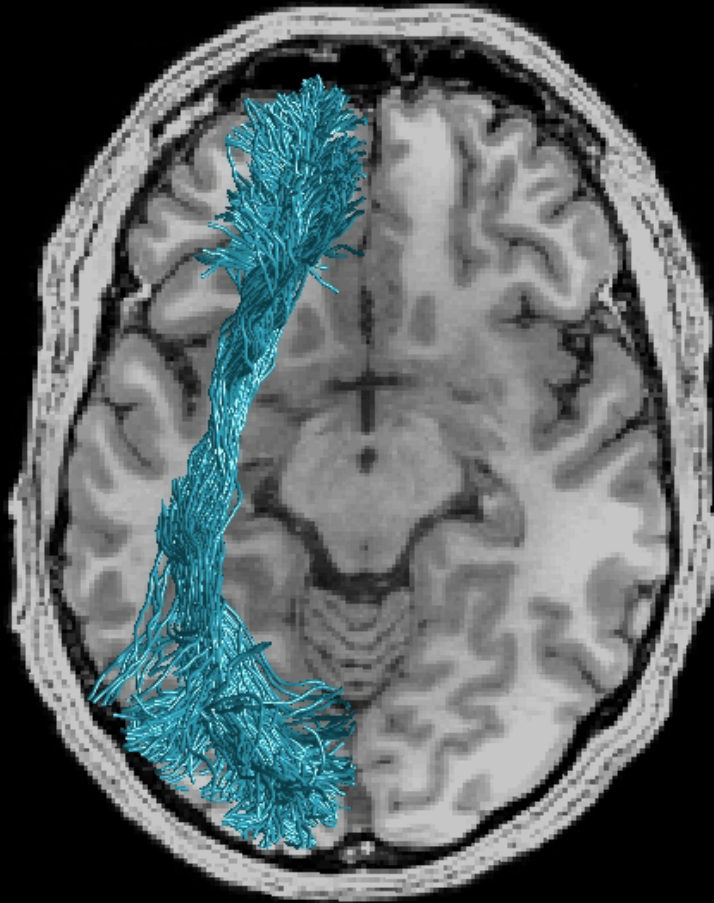
Modern neuroimaging can map multitudes of living brains



Pestilli et al. Nature Methods 2014, Takemura et al. PLoS Comp Bio 2016

In-vivo digital brain science

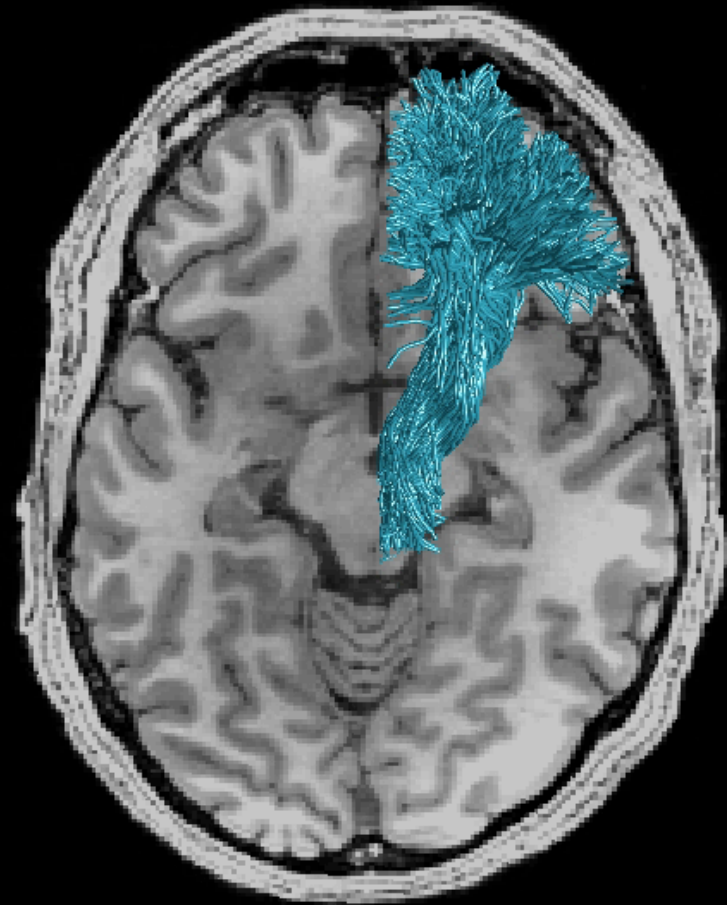
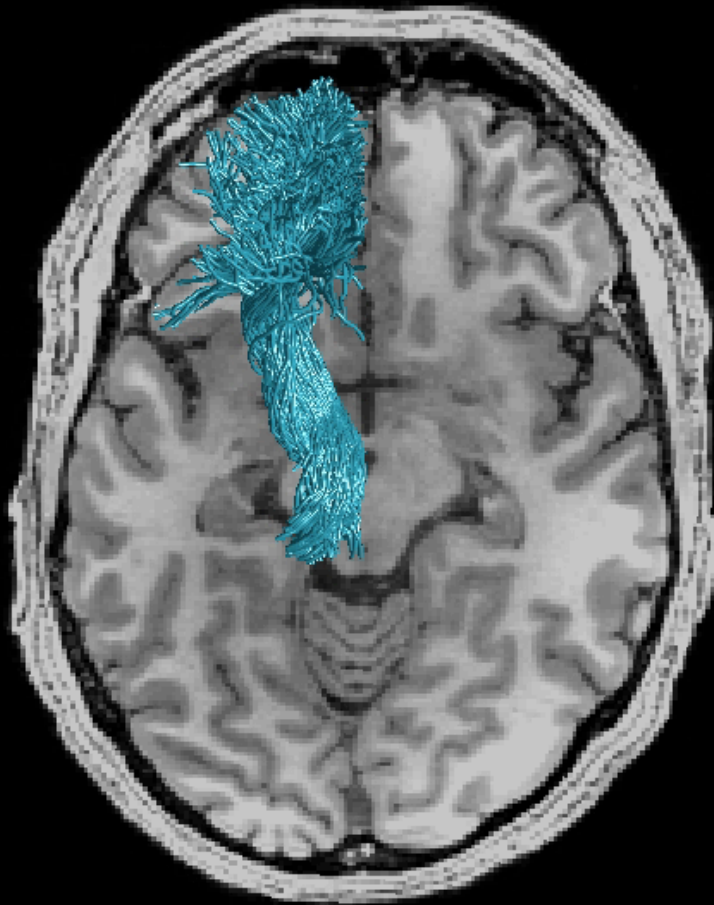
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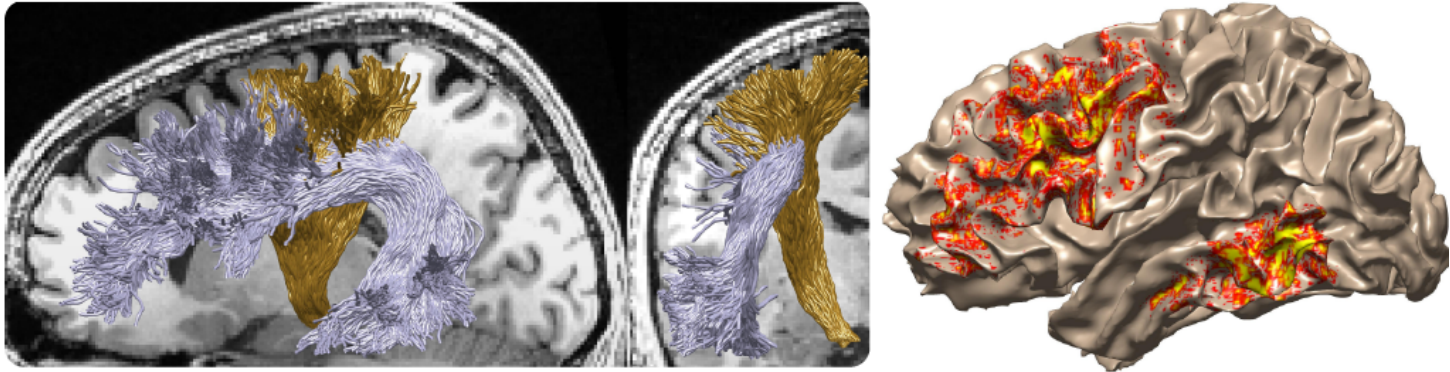
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Understanding the human brain

From in-vivo neuroscience to data science



The Midwest has:

- Thousands of brain data sets.
- Hundreds of computational neuroscientists.
- Hundreds of BigData experts.
- World renowned computational facilities.

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A network of brains and scientists

**R. Gonzalez (Umich, PI),
G. Adler and I. Dinov.**

**F. Pestilli (IU, PI),
A. Saykin, and O. Sporns,
L. Wang (Northwestern),
D. Marcus (WashU)**

**S. Sahoo (CaseW, PI),
DK. Panda (OSU, PI),
K. Hamidouche, X. Lu,
H. Subramoni, M. Arnold.**

30+ partners

Neuroimaging

Hospitals

Industry

Institutes

Scientists

Engineers



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A network of brains, and scientists

1. Research education.
2. Collaboration.
3. Resources integration.
4. Computational access.
5. Data acquisition.
6. Data sharing.
7. Brain analytics.
8. Hackathons.



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