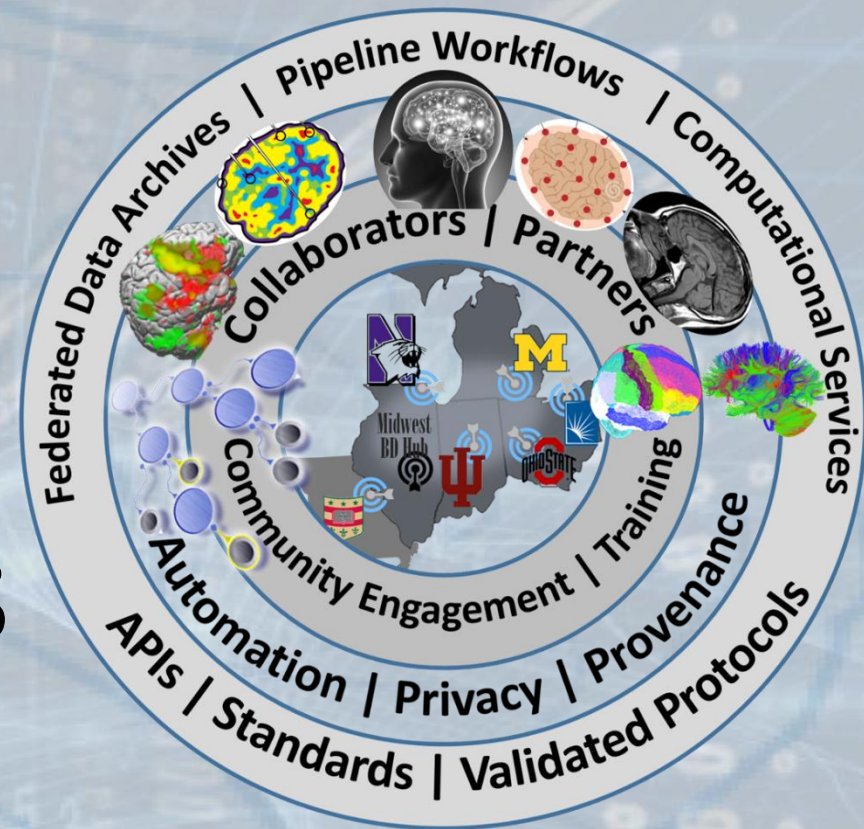


Midwest Workshop on Big Neuroscience Data, Tools, Protocols & Services



Computational Neuroscience Network (ACNN)

http://www.NeuroscienceNetwork.org/ACNN_Workshop_2016.html

Workshop Overview

Ivo D Dinov

Statistics Online Computational Resource (SOCR)

Michigan Institute for Data Science (MIDAS)

University of Michigan

<http://www.umich.edu/~dinov>



SCHOOL OF NURSING
STATISTICS ONLINE
COMPUTATIONAL RESOURCE (SOCR)
UNIVERSITY OF MICHIGAN



Logistics

What	An interactive Big Neuroscience Data Analytic Workshop
Where/Venue	Michigan League, University of Michigan, 911 N University Ave, Ann Arbor, MI 48109, Phone: (734) 764-0446, Web: https://uunions.umich.edu/league
Dates	September 20-21, 2016
Accommodation	<ul style="list-style-type: none">○ Michigan League, University of Michigan, 911 N University Ave, Ann Arbor, MI 48109, Phone: (734) 764-0446, Web: https://uunions.umich.edu/league○ The Holiday Inn Near the University of Michigan, 3600 Plymouth Road, Ann Arbor, MI 48105, 734-796-9800, Web: http://www.hiannarbor.com
Travel Scholarships	60 Travel scholarships are available for Students, Postdocs, Fellows, and other Trainee on a first-come-first-serve bases
URL	www.NeuroscienceNetwork.org/ACNN Workshop 2016.html

Program

Day 1 (Tue 9/20/16)

Time	Sessions	Details
8-9 AM	Registration	Onsite registration, nametags, booklets, breakfast, coffee, networking
9:00-9:45	Workshop Overview ACNN Background, Scope Organization/Format	(1) Workshop Overview (Ivo Dinov), 15 min (2) Midwest Big Data Hub Health Sciences (Brian Athey), 15 min (3) Advanced Computational Neuroscience Network (Rich Gonzalez), 15-min
9:45-12:15	Big Neuroscience Data, Gaps/Barriers, Analytical Methods, Available Resources, Distributed Services, and Opportunities	(1) Indiana Computational Neuroimaging Research (Franco Pestilli) 20 min (2) OSU Network Based Computing (DK Panda, K Hamidouche, X Lu, H Subramoni) 20 min (3) CWRU Biomedical and Healthcare Informatics (Satya Sahoo) 20 min BREAK 10 min (4) HumanConnectome: Neuroimaging Informatics and Analysis Center (Daniel Marcus) 20 min (5) Northwestern Neuroimaging and Applied Computational Anatomy (Lei Wang) 20 min (6) Michigan Institute for Data Science (Ivo Dinov), 20 min
12:15-1:15	Lunch Break	
1:15-3:15	Unconference Breakout Sessions (4 consecutive slots of 30- min each). Participants are encouraged to lead breakouts and mix with others.	Informal self-organized sessions (30-minutes each), round-robin rotations
3:15-3:30	Break	
3:30-4:30	Breakout sessions reports	Analytics Pipelines Tools/Services Challenges Known Solutions Predictive analytics - methods, tools, protocols, workflows Provenance (data, protocols, results, reproducibility or research findings) Computational Neuroscience Methods Case-studies, data archives, Cloud Services
4:30-5:30	Posters/Demos	Applications (brain mapping, imaging-genetics neurodegeneration)
6:00-8:00 PM	Dinner	Social Networking

Program

Day 2 (Wed 9/21/16)

Time	Sessions	Details
8:00-8:30 AM	Registration	Onsite registration, nametags, booklets, breakfast, coffee, networking
8:30-11:00	Core Big Neuroscience Infrastructure	(1) Computational Network Models of the Human Brain (Olaf Sporns) 25 min (2) Indiana Computational Neuroimaging Research (Franco Pestilli) 25 min (3) OSU Network Based Computing (Dhabaleswar Panda, Khaled Hamidouche, Xiaoyi Lu, Hari Subramoni) 25 min BREAK 10-min CWRU Biomedical and Healthcare Informatics (Satya Sahoo) 25 min (1) Graphical Pipeline Workflows for Integrated Neuroscience (Ivo Dinov), 25 min
11:00-11:10	Break	
11:10-12:10	Lightning Talks	3-5 min Rapid-Fire talks from the Midwest Big Data Community
12:10-1:10	Lunch Break	
1:10-2:40	Unconference Breakout Sessions (3 consecutive slots of 30-min each). Participants are encouraged to lead breakouts and mix with others.	Informal self-organized sessions (30-minutes each), round-robin rotations: Brain structure, Function, Diffusion, Physiology; File Formats; Pipeline workflow Environments; Cloud Services: JIRA, GitHub, Trello, AWS, MapReduce, Hadoop; Driving Biomedical/Healthcare Challenges, etc.
2:40-2:50	Break	
2:50-3:30	Breakout sessions reports	Analytics Pipelines Tools/Services Challenges Known Solutions Predictive analytics - methods, tools, protocols, workflows Provenance (data, protocols, results, reproducibility or research findings) Computational Neuroscience Methods Case-studies, data archives, Cloud Services
3:30-4:00	Live Demos Try-It-Now	Applications (brain mapping, imaging-genetics neurodegeneration)
4:00 PM	Conclusions	Workshop Evaluation (http://www.neurosciencenetwork.org/ACNN_Workshop_2016.html). Collaborations, joint papers, extramural grant opportunities, Shareable resources, Available Webapps, APIs, workflows
	Post-conference Report	Generate a Report (due 1 month after workshop)

Sponsors

The National Science Foundation, 

Midwest Big Data Hub, <http://MidwestBigData.org>

Midwest Big Data
Accelerating the Big Data Innovation Ecosystem

The Michigan Institute for Data Science




The Indiana Imaging Research Facility



OSU Network Based Computing, 



CWRU Biomedical and Healthcare 

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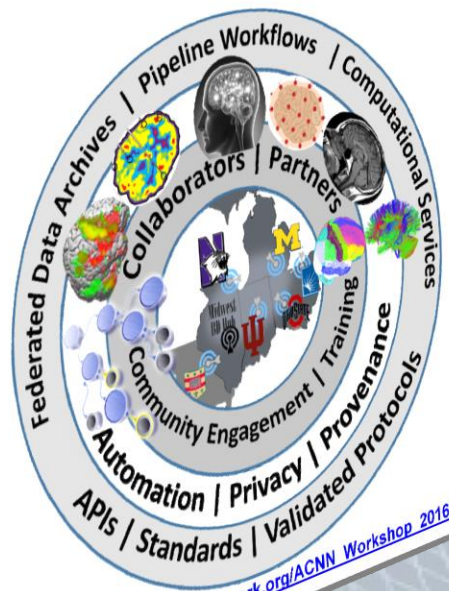
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- Workshop Registration including Training
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- Post-conference Evaluation
- Participants
- Maps & Directions



[Advanced Computational Neuroscience Network \(ACNN\)](http://www.neurosciencenetwork.org/ACNN)

Midwest Workshop on Big Neuroscience Data, Tools, Protocols & Services

Workshop Handbook



http://www.neurosciencenetwork.org/ACNN/Workshop_2016.html

Handbook

Organizers

The [Advanced Computational Neuroscience Network \(ACNN\)](#)

- University of Michigan: [Ivo Dinov](#), [Rich Gonzales](#), [George Alter](#)
- Indiana University: [Franco Pestilli](#), [Olaf Sporns](#), [Andrew Saykin](#)
- OSU: [DK Panda](#), [Khaled Hamidouche](#), [Xiaoyi Lu](#), [Hari Subramoni](#)
- CWRU: [Satya Sahoo](#)
- Washington University: [Daniel Marcus](#)
- Northwestern University: [Lei Wang](#)

Workshop Goals

- 1) Actively engage students, trainees, fellows, junior investigators, and outside researchers in Midwest academic institutions and industry partners
- 2) Build an active Midwest Neuroscience Network Community
- 3) Openly share data-intensive challenges, datasets, research projects, expertise, software, services, protocols, resources, learning modules
- 4) Discuss joint (multi-institutional) grants, training opportunities, publications, research projects

Unconference Breakout Sessions

- Use the Breakout Session Board/Online-Form to **review** and **propose** discussion topics at the appropriate times. Be prepared to take notes at your break out session and report on outcomes, achievements, plans, and actions that came out of the discussions
- Unconference Breakout Sessions (consecutive slots of 30-min each). Participants are encouraged to form WGs, lead breakouts, and mix with others. These are Informal self-organized sessions. Participants can rotated through breakouts

<https://goo.gl/bKWNvi>

Unconference Breakout Sessions

Proposed Topics	Day 1: 1:00-3:00 PM				Notes	Proposed Topics	Day 2: 1:00-2:30		
	1-1:30	1:30-2	2:2:30	2:30-3			1-1:30	1:30-2	2:2:30
Enter Topic1	(tally interested attendees)		Enter Topic1	(tally interested attendees)
...

Breakout Session Reports: 3:20-4:20

Analytics Pipelines

- Tools/Services
- Challenges
- Known Solutions
- Predictive analytics - methods, tools, protocols, workflows
- Provenance (data, protocols, results, reproducibility or research findings)
- Computational Neuroscience Methods
- Case-studies, data archives
- Cloud Services
- Other

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Breakout Session Reports: 2:30-3:00

Analytics Pipelines

- Tools/Services
- Challenges
- Known Solutions
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- Computational Neuroscience Methods
- Case-studies, data archives
- Cloud Services
- Other

Hands-on & Try-It-Now Demos

- Sign in to present and showcase hands-on their group's challenges, case-studies, datasets, software tools, services, computational infrastructure, and other materials and resources. Avoid sales pitches and infomercials. Open-science resources should be emphasized
- Draft a **1-page PDF handout** and email to aalison@med.umich.edu
- See the [Shareable Resources](#) section

Day 2: 3:00-4:00

Demos	3:00-3:20	3:20-3:40	3:40-4:00
Demo 1 Description	(tally interested attendees)
...

<https://goo.gl/bKWNvi>

Shareable Resources

- Use the web-form to submit items for inclusion in the sharable resources
- Examples (not an exclusive list) of appropriate resources include:
 - Highly scalable APIs
 - Relevant publications
 - Cloud-services
 - Computational Resources
 - Algorithms, methods, techniques
 - Education and Training Opportunities

<https://goo.gl/gpTrRg>

Workshop Sponsors

The National Science Foundation
<http://www.nsf.gov>



Midwest Big Data Hub
<http://MidwestBigDataHub.org>



OSU Network Based Computing
<http://nowlab.cse.ohio-state.edu>



The Michigan Institute for Data Science (MIDAS)
<http://midas.umich.edu>



The Indiana Imaging Research Facility (IRF)
<https://www.indiana.edu/~irf/home>



CWRU Biomedical and Healthcare Informatics
<https://goo.gl/l19s07>



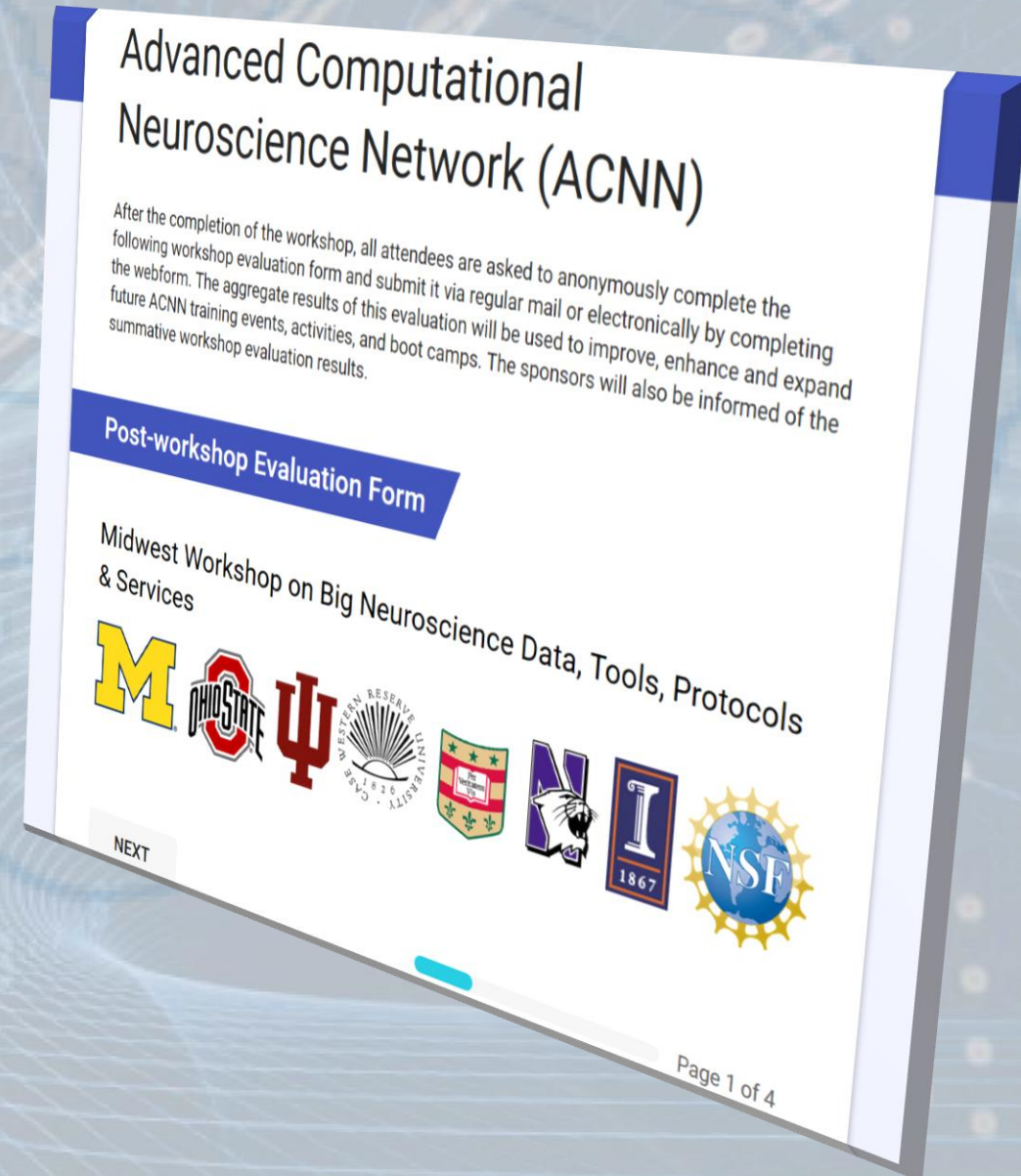
Michigan Nutrition Obesity Research Center (MNORC) <http://mmoc.med.umich.edu>



Post-conference Evaluation

- After the completion of the workshop, all attendees are asked to anonymously complete the web-based workshop evaluation form. The aggregate results of this evaluation will be used to improve, enhance and expand future ACNN training events, activities and bootcamps. The sponsors will also be informed of the summative workshop evaluation results

- <http://goo.gl/forms/qSI6PGiN4PfTs6Fg1>



Open-Science Principles

- Share resources
- Collaborate
- Permissive licenses (e.g., LGPL/CC-BY)
- Project management (e.g., GitHub/Jira)
- Open-access pubs
- Public-private partnerships
- Co-mentoring of trainees
- Effective transdisciplinary methods
- Resource Interoperability
- Result Reproducibility



