



## NIH Opportunities for Computational Neuroscience

*Michele Ferrante, Ph.D.*

Theoretical and Computational Neuroscience Program  
Division of Neuroscience and Basic Behavioral Science, NIMH

Computational Psychiatry Program  
Division of Translational Research, NIMH

CRCNS Investigators Meeting  
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National Institute  
of Mental Health

# CRCNS contacts and agency affiliations

## NSF (USA)

- Kenneth Whang [kwhang@nsf.gov](mailto:kwhang@nsf.gov)

## ANR (FRANCE)

- Mathieu Girerd [mathieu.girerd@anr.fr](mailto:mathieu.girerd@anr.fr)
- Sheyla Mejia [sheyla.mejia@anr.fr](mailto:sheyla.mejia@anr.fr)

## BMBF (GERMANY)

- Rainer Girgenrath [rainer.girgenrath@dlr.de](mailto:rainer.girgenrath@dlr.de)

## BSF (ISRAEL)

- Yael Dressler, [yael@bsf.org.il](mailto:yael@bsf.org.il)
- Rachel Haring, [heni@bsf.org.il](mailto:heni@bsf.org.il)

## NIH (USA)

- Michele Ferrante, [michele.ferrante@nih.gov](mailto:michele.ferrante@nih.gov)



# Theoretical and Computational Neuroscience Program

Division of Neuroscience and Basic Behavioral Science, NIMH

This Program supports empirical and theoretical studies of self-organizing behavior in neuronal systems, mathematical approaches to modeling non-stationary neuronal processes, functional imaging of dynamical systems, and the modeling of all levels of neuronal processing, from single cell activity to complex behaviors. Projects typically combine mathematical and computational tools with neurophysiological, neuroanatomical, or neurochemical techniques in order to decipher the mechanisms underlying specific neuronal and behavioral systems.

## Computational Psychiatry Program

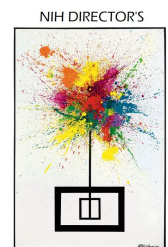
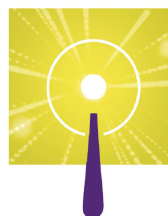
Division of Translational Research, NIMH

This program fosters biologically-based computational frameworks to identify and validate biomarkers and novel treatment targets relevant to the prevention, treatment, and recovery of psychiatric disorders. The program supports translational research using analytical approaches for the prediction of risk and treatment response and the understanding of the pathophysiology underlying mental disorders.

**Contact: [michele.ferrante@nih.gov](mailto:michele.ferrante@nih.gov)**



# NIH Innovation Awards



TRANSFORMATIVE  
RESEARCH  
AWARD

- NIH Director's Pioneer Award
- NIH Transformative Research Award
- NIH Director's New Innovator Award
- NIH Director's Early Independence Award
- NIMH Biobehavioral Research Awards for Innovative New Scientists (BRAINS)

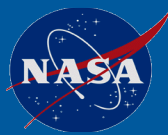
# Interagency Modeling and Analysis Group



## Multiscale Modeling (MSM) Mission

- Encourage multiscale modeling in biomedical, biological and behavioral systems
- Promote multidisciplinary scientific collaboration
- Support future generations of multiscale modelers
- Move the field of biological computational modeling towards:
  - predictive models of biology, health and disease
  - bioenergy and bioremediation
  - biomimetics
- Develop accurate methods and algorithms to cross the interface between multiple spatiotemporal scales
- Promote model sharing and the development of reusable multiscale models
- Disseminate the models and insights arrived from the models to the larger biomedical, biological, and behavioral research community

<http://www.imagwiki.nibib.nih.gov/>



# Trans-NIH Initiatives/Programs

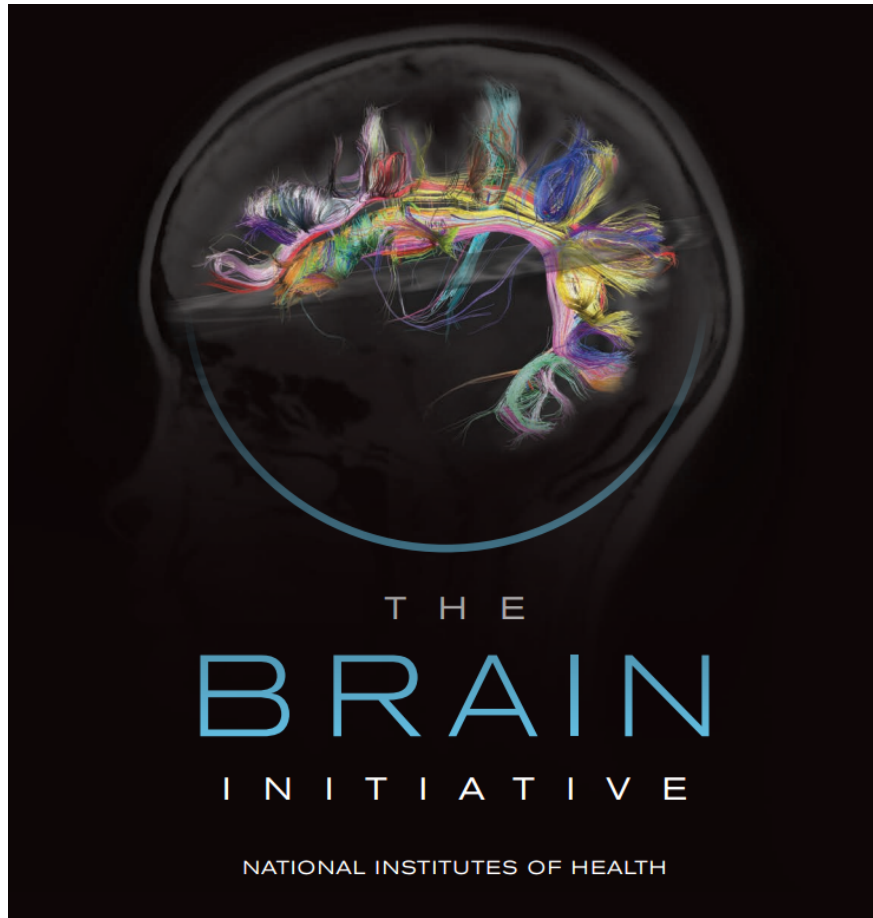
**BD2K** is a trans-NIH initiative established to enable biomedical research as a digital research enterprise, to facilitate discovery and support new knowledge, and to maximize community engagement.

**BISTI is a consortium of representatives from each of the NIH institutes and centers. The mission of BISTI is to make optimal use of computer science and technology to address problems in biology and medicine by fostering new basic understandings, collaborations, and transdisciplinary initiatives between the computational and biomedical sciences.**

**SPARC** Stimulating Peripheral Activity to Relieve Conditions. All organs in the body are stimulated by nerves, which send signals that affect the organ's function. Methods and medical devices that modulate these nerve signals are a potentially powerful way to treat many diseases and conditions, such as hypertension, heart failure, gastrointestinal disorders, type II diabetes, inflammatory disorders, and more.

<https://datascience.nih.gov/bd2k/>

# The BRAIN Initiative



**“Rigorous theory, modeling, and statistics are advancing our understanding of complex, nonlinear brain functions where human intuition fails. New kinds of data are accruing at increasing rates, mandating new methods of data analysis and interpretation. To enable progress in theory and data analysis, we must foster collaborations between experimentalists and scientists from statistics, physics, mathematics, engineering, and computer science.”**

**-BRAIN Working Group Report to the Advisory Committee to the Director, NIH June 5, 2014**

# The BRAIN Initiative

- Non-Invasive Neuromodulation - Mechanisms and Dose/Response Relationships for Targeted CNS Effects. Contact: [ffriedma@mail.nih.gov](mailto:ffriedma@mail.nih.gov)
- Research Career Enhancement Award for Investigators to Build Skills in a Cross-Disciplinary Area. Contact: [ghimm@mail.nih.gov](mailto:ghimm@mail.nih.gov)
- BRAIN Initiative Cell Census Network (BICCN) - Specialized Center on Human and Non-Human Primate Brain Cell Atlases. Contact: [yyao@mail.nih.gov](mailto:yyao@mail.nih.gov)
- Team-Research BRAIN Circuit Programs – TeamBCP. Contact: [BRAINCircuits@NIH.GOV](mailto:BRAINCircuits@NIH.GOV)
- New Technologies and Novel Approaches for Large-Scale Recording and Modulation in the Nervous System. Contact: [BRAIN-FOAs@nih.gov](mailto:BRAIN-FOAs@nih.gov)
- Next-Generation Invasive Devices for Recording and Modulation in the Human Central Nervous System. Contact: [BRAIN-FOAs@nih.gov](mailto:BRAIN-FOAs@nih.gov)
- Data Archives for the BRAIN Initiative. Contact: [farberg@mail.nih.gov](mailto:farberg@mail.nih.gov)
- Integration and Analysis of BRAIN Initiative Data. Contact : [farberg@mail.nih.gov](mailto:farberg@mail.nih.gov)

<https://www.braininitiative.nih.gov/funding/index.htm>





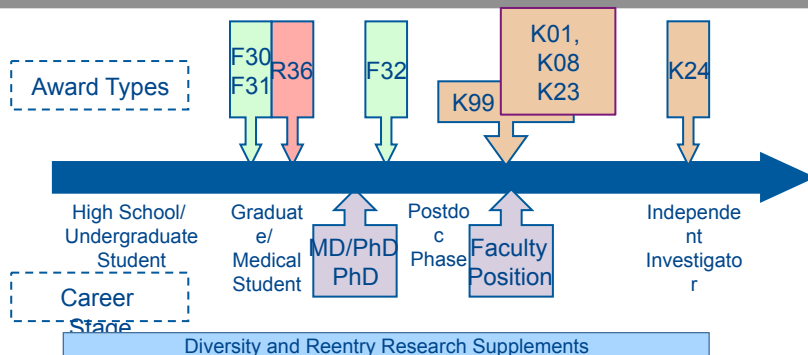
# Funding Opportunity Announcements

- ❖ The NIH Guide: subscribe to weekly e-mail listserv
- ❖ Parent Announcements:

Type	Prelim Data?	Years	Dollars
R01	Yes	3-5	\$250-500K/yr
R21	No	2	\$275K over 2 yrs
R03	Yes	2	\$50K/yr
R15	Yes	3	\$300K up front

# Guide to NIMH Funding for Research Training

<http://www.nimh.nih.gov/research-funding/training/>



There are three ways you can receive funding from the National Institute of Mental Health (NIMH). In all cases, you must be affiliated with an institution and have a mentor.

- Directly from the NIMH (Individual Awards – F, K, R36)
- From an academic institution with an NIMH-supported training program (Institutional Awards – T32)
- From an administrative supplement to an existing NIMH grant awarded to your mentor (Diversity & Reentry Supplements)

**F31 – Individual Predoctoral Fellowship to Promote Diversity in Health-Related Research** ([PA-16-308](#)): Support for graduate students to increase diversity in biomedical research.

**F31 – NRSA Predoctoral Fellowship** ([PA-16-309](#)): Dissertation stage support for graduate students.

**F30 – NRSA Fellowship for MD/PhD Training** ([PA-16-305](#) and [PA-16-306](#)): Dissertation stage support for MD/PhD students.

**F32 – NRSA Postdoctoral Fellowship** ([PA-16-307](#)): Support for postdoctoral scholars.

**R36 – Dissertation Grant to Enhance Diversity** ([PAR-15-181](#)): Support for the dissertation stage of graduate training to enhance workforce diversity in biomedical research.

**Research Supplements to Promote Diversity in Health-Related Research** ([PA-16-288](#)): Support for individuals from racial & ethnic groups underrepresented in science and for individuals with disabilities or from disadvantaged backgrounds.

**Supplements to Promote Reentry into Biomedical and Behavioral Research Careers** ([PA-16-289](#)): Support for individuals with high potential to re-enter an active research career after a qualifying interruption for family or other responsibilities.

**K99/R00 – NIH Pathway to Independence Award** ([PA-16-193](#)): Mentored (K99) and independent (R00) support from the same award. Must have less than 4 years of postdoctoral training at submission. Non-U.S. citizens are eligible to apply.

**K01 – Mentored Research Scientist Career Development Award** ([PA-16-190](#)): Support for research scientists needing additional mentored research training.

**K08 – Mentored Clinical Scientist Career Development Award** ([PA-16-191](#)): Support for clinically trained scientists seeking mentored training in either a basic or applied setting.

**K23 – Mentored Patient-Oriented Research Career Development Award** ([PA-16-198](#)): Support for clinically trained scientists focused on patient-oriented research.

**K24 – Midcareer Investigator Award in Patient-Oriented Research** ([PA-16-206](#)): Support for clinician investigators conducting patient-oriented research.

