

NSF 出资 1600 万资助认知科学与神经科学领域新型整合型研究

9月11日，美国国家科学基金会（National Science Foundation, NSF）宣布资助18个跨学科项目以推动神经与认知系统的创新研究，这同时也是NSF作为“Understanding the Brain”和“BRAIN Initiative”两个项目成员单位的后续支出。

18支研究队伍将整合多个学科尝试以全新方式探索大脑基本命题，有望处理神经科学和认知科学领域的棘手难题，在开启未来研究新途径方面被寄予厚望，是一批高风险高回报型研究计划。

18个项目将重点推动四大领域基础研究前沿：

- 神经工程、类脑概念与设计（Neuroengineering and brain-inspired concepts and designs）
- 个体化与变异（Individuality and variation）
- 现实、复杂环境中的认知与神经加工（Cognitive and neural processes in realistic, complex environments）
- 数据密集型神经科学与认知科学（Data-intensive neuroscience and cognitive science）

获资项目会开发一些新方法如闭环系统来测量和控制神经活动，创制工具用于研究难于学习（difficult-to-study）有机体的神经系统，通过整合不同分析层面的信息使用新方法理解大脑，融合计算机科学和神经影像以发现可以用于研究学习的新认识。

NSF四大理事会——计算机、信息科学与工程，教育与人力资源，工程，社会、行为与经济科学，将联合资助这18支跨学科研究队伍，围绕上述重点领域，探索神经与认知系统如何与教育、工程和计算机等学科交互作用，从而推动神经科学、工程、行为科学与教育领域的基础研究，最终从未来的神经科学进展中获益。

18个获资助项目如下：

- (1) Modeling individual differences in cognitive control as variation in neural activation trajectories

链接：

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1835209&HistoricalAwards=false

- (2) Discovering dynamics in massive-scale neural datasets using machine learning

链接：

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1835390&HistoricalAwards=false

- (3) Analyzing synapses, motifs and neural networks for large-scale connectomics

链接:

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1835231&HistoricalAwards=false

- (4) Closed-loop neuromodulation for chronic pain

链接:

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1835000&HistoricalAwards=false

- (5) Optoelectronic tools for closed-loop neuron ensemble recording and control during complex behaviors

链接:

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1835268&HistoricalAwards=false

- (6) Distributed neural organization of sensorimotor dynamics

链接:

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1835181&HistoricalAwards=false

- (7) Unraveling cortical circuits for auditory scene analysis

链接:

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1835270&HistoricalAwards=false

- (8) Individual variation in the fine-grained structure of distributed cortical systems for cognition

链接:

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1835200&HistoricalAwards=false

- (9) Human decision-making in complex environments

链接:

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1835202&HistoricalAwards=false

- (10) Electrocortical processes in real-world locomotion

链接:

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1835317&HistoricalAwards=false

- (11) Integrating non-invasive neuroimaging and educational data mining to improve understanding of robust learning processes

链接:

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1835307&HistoricalAwards=false

- (12) Leveraging deep probabilistic models to understand the neural bases of subjective

experience

链接:

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1835309&HistoricalAwards=false

- (13) Spatial intelligence for swarms based on hippocampal dynamics

链接:

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1835279&HistoricalAwards=false

- (14) How ecology induces cognition: Paleontology, machine learning and neuroscience

链接:

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1835389&HistoricalAwards=false

- (15) Developing underwater EEG electrodes for octopus research

链接:

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1844589&HistoricalAwards=false

- (16) Engineering living neural networks for learning

链接:

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1835278&HistoricalAwards=false

- (17) How real-world interaction networks shape and are shaped by neural information

processing

链接:

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1835239&HistoricalAwards=false

- (18) Using fMRI to revise psychological variables

链接:

https://www.nsf.gov/awardsearch/showAward?AWD_ID=1845958&HistoricalAwards=false

相关链接:

Understanding the Brain: https://www.nsf.gov/news/special_reports/brain/

BRAIN Initiative : <http://www.braininitiative.org/>

原文标题: NSF funds new integrative approaches to cognitive science, neuroscience

原文链接:

https://www.nsf.gov/news/news_summ.jsp?cntn_id=296505&WT.mc_id=USNSF_51&WT.mc_ev

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检索日期: 2018-9-13

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