

Data-Driven Discovery Investigator Competition Gordon and Betty Moore Foundation

Opportunity

The Science Program of the Gordon and Betty Moore Foundation is announcing a solicitation for applications for an Investigator Program as part of its Data-Driven Discovery (DDD) Initiative. DDD seeks to advance the people and practices of data-intensive science to take advantage of the increasing volume, velocity, and variety of scientific data to make new discoveries. Data-intensive science is inherently multidisciplinary, combining natural sciences with methods from statistics and computer science.

The goal of the DDD Investigator awards is to fund individuals who exemplify this new kind of data-driven discovery. ***These innovators are striking out in new directions and are willing to take risks with the potential of huge payoffs in some aspect of data-intensive science.*** Successful applicants must make a strong case for developments in the natural sciences (biology, physics, astronomy, etc.) or science enabling methodologies (statistics, machine learning, scalable algorithms, etc.), and ***applicants that credibly combine the two are especially encouraged.*** (Note that the Science Program does not fund disease targeted research.)

It is anticipated that the DDD initiative will make about 15 awards at ~\$1,500,000 each (\$200K-\$300K/year for five years).

Qualifications

The Foundation is using a two-step application process, consisting of 1) an open pre-application, and 2) an invited full application after pre-application review. We are interested in applications from innovative people who are tackling data-intensive science across a wide spectrum of fields and who meet the following qualifications:

1. The applicant must be a full time employee of a PhD-granting institution or a private research institution in the United States who has the authority to be a Principal Investigator (PI). It is ***not*** necessary for the applicant to be tenured or tenure-track faculty, the Foundation recognizes the value of research scientists and professional staff in this emerging space.
2. There will be two categories of investigators, depending on career stage:
 - a. ***Early Career:*** For investigators within six years of his or her PhD, the full application, if invited, must include a nomination letter from a mentor commenting on the applicant's: i) prior work, ii) ability to independently lead a research program, and iii) potential for innovation.
 - b. ***Experienced:*** All other investigators must have been a PI or Co-PI on an award from either a federal research agency such as NSF, NIH, DOE, or DARPA, or a private research funder.
3. It is intended that Foundation funding will be used to primarily support people in the successful applicant's research group. These personnel are anticipated to be at various career stages such as undergraduates, graduate students, staff, and post-doctoral fellows, and salary for the applicant is allowed. The awards are not intended for major equipment, or to support experiments to obtain new data sets.

Pre-Application Elements

Initially a pre-application should be submitted online with no smaller than 11pt Times New Roman font on 8.5-11" paper with 1-inch margins. The pre-application consists of three parts:

1. Applicant Accomplishments and Research Directions: A maximum two-page narrative (as a pdf) that describes the applicant's *Major Accomplishments* and *Future Research Direction*. Specifically, what are the applicant's past major accomplishments, breakthroughs, and barriers overcome? What would be the future research direction with the funding, taking advantage of the longer term, flexible and risk-taking investment provided by the Foundation that is not readily available from other sources? Identify dramatic potential **payoffs**, either in discoveries in the natural sciences or improvements in data science methodologies, or ideally, both. As an example, enhanced methodologies that enable discoveries from actual scientific data sets.
2. Applicant Biography: A maximum two-page NSF-style bio-sketch (as a pdf) consisting of sections on professional preparation, appointments, five most relevant papers or projects (e.g. software systems), five synergistic activities, and lists of awards and collaborators. For projects or synergistic activities, provide links to any publicly accessible code or data created or shared by the applicant as well as metrics such as the number of users or downloads.
3. Applicant Information: An online form containing the title, investigator name/institution, contact information, and general areas of expertise. *In addition*, please include up to five references to the most influential work in data science in the applicant's view. This is distinct from the bio-sketch references and will not be factor in the Foundation's decision-making. This information will help the Foundation better understand the influential ideas related to data-driven discovery and data science.

Pre-applications that exceed the page limits will not be reviewed.

Process

The pre-applications are due Monday February 24, 2014 by 5pm Pacific Time. They must be submitted online at <http://www.moore.org/DDDInvestigator>. A list of frequently asked questions is also available at this site and updated often. If your question is not answered, please contact DDDInvestigator@moore.org. Pre-applications will undergo an external review process.

The Foundation anticipates extending invitations for full applications in April 2014. If a full application is invited it will be limited to six pages consisting of an abstract and extensions to the major accomplishments and future research direction section. In addition, a nomination letter for *Early Career* applications will be required. Full applications will be due five weeks after the invitation is sent, currently anticipated for mid-May 2014.