



National Science Foundation
4201 Wilson Boulevard
Arlington, Virginia 22230

Dear Colleagues,

The NSF has just announced its newest multidisciplinary, multi-year initiative: "Cyber-Enabled Discovery and Innovation (CDI)," (<http://www.nsf.gov/pubs/2007/nsf07603/nsf07603.htm>). CDI aims to create revolutionary science and engineering research outcomes made possible by innovations and advances in "computational thinking." Computational thinking is defined comprehensively as computational concepts, methods, models, algorithms, and tools. Applied in challenging science and engineering research and education contexts, computational thinking promises a profound impact on the Nation's ability to generate and apply new knowledge. Collectively, CDI research outcomes are expected to produce paradigm shifts in our understanding of a wide range of science and engineering phenomena and socio-technical innovations that create new wealth and enhance the national quality of life.

CDI seeks ambitious, transformative, multidisciplinary research proposals within or across the following three thematic areas:

- From Data to Knowledge: enhancing human cognition and generating new knowledge from a wealth of heterogeneous digital data;
- Understanding Complexity in Natural, Built, and Social Systems: deriving fundamental insights on systems comprising multiple interacting elements; and
- Building Virtual Organizations: enhancing discovery and innovation by bringing people and resources together across institutional, geographical and cultural boundaries.

A competitive CDI proposal will:

- Describe an ambitious research and/or education agenda that, through computational thinking, promises paradigm-shifting advances in more than one field of science or engineering;
- Provide a compelling rationale for how innovations in, and/or innovative use of, computational thinking will yield the desired project outcomes; and,
- Draw on productive intellectual partnerships that capitalize upon knowledge and expertise synergies in multiple fields or sub-fields of science or engineering, and/or in multiple types of organizations, including academic, for-profit, and not-for-profit entities, both foreign and domestic.

Please note, CDI review criteria are fully compliant with the updated NSF review criteria, which can be found in the NSF Proposal and Award Policies and Procedures Guide, Part I: Grant Proposal Guide (GPG) at http://www.nsf.gov/pubs/policydocs/pappguide/nsf08_1/gpg_3.jsp

Projects that make straightforward use of existing computational concepts, methods, models, algorithms, and tools to significantly advance only one field of science or engineering should be submitted to an appropriate NSF program in that field instead of to CDI.

For additional information about CDI, including frequently asked questions, please refer to <http://www.nsf.gov/crssprgm/cdi> . Examples of motivating science and/or engineering research and education opportunities can also be found there. This list is provided for purposes of illustration only; it is neither exhaustive, nor indicative of preference regarding research areas.