Request for Proposals (RFP)
Implementation of Best Practices for Supporting Postdocs

In recent years, new PhD's in the CS&E community have increasingly chosen postdoc training assignments in their pursuit of research careers. Large numbers of postdocs in CS&E are a new phenomenon for us. Our community has an opportunity, as a field, to institutionalize a set of best practices, drawn from our own experience and that of postdocs in other fields and to establish a culture that provides postdocs a superb enriching experience that launches their research careers.

The Computing Community Consortium (CCC), a committee of the Computing Research Association (CRA), is requesting proposals for research to improve training programs for postdocs in the Computer and Information Science and Engineering (CS&E) community. This RFP seeks proposals to pursue innovations that will make lasting changes to improve the postdoc experience. Innovations may improve mentoring; provide training in myriad research skills; develop host institution or department support structures for both postdocs and advisors; build a mutually supportive community of postdocs (and mentors) locally or across virtual space; counsel postdocs on alternative career positions; guide graduate students in analyzing and selecting postdoc opportunities; or other similar activities. The overall objective of this project, dubbed PostdocBP (BP stands for "best practices"), is to foster systemic and permanent change in our community. Thus, broad approaches that cover all sub-fields of CS&E, collaboration among grantees to reach consensus on how to execute and to measure the results of postdoc training programs, and sustainability of innovative programs are all important goals.

Program Description.
A **postdoc position** is, by definition, a *training* opportunity in which a person who has just completed a Ph.D. can deepen his or her expertise and research skills for a short period of time, en route to a permanent position. Postdocs are often low-paid positions[1], and typically they deliver real value to their host institution by, for example, teaching, managing graduate students, co-authoring articles about ongoing research, etc. In return, the host institution, as well as the advisor

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[1] The CRA Taulbee Survey reports that on average a postdoc "costs" a university roughly the same as a graduate student.

at that institution, should implement best practices for supporting the postdoc and furthering that person's training on all relevant dimensions. This involves a great deal more than an advisor who merely imparts technical knowledge or even one who acts as a mentor. It involves the institution providing support as well. We expect through the activity funded by this grant to establish a stronger and better culture in the CS&E community.

A proposal for an award under this program should:

- Identify and clearly describe a set of best practices that the proposer has selected for implementation. This may draw from or expand upon the best practices already identified by the CS&E community; a list of a few best practice documents appears below.

- Describe an approach to *implementation* of those best practices.

- Apply the implementation (approach for) best practices for a significant number of postdocs in one or more CS&E research institutions in a sustainable way.

  - Consortia and virtual support approaches are encouraged.

  - Any implementation should involve a thoughtful program to teach the postdoc research skills (as needed) such as how to design a research project, manage a research group, author quality technical papers, deliver effective oral communication, pitch a research idea in a short "elevator talk", write a proposal for funding, effectively find and use scholarly materials, and other career skills.

  - Every postdoc needs to be involved in a research community and the institution should provide for postdocs to mingle with and learn from other postdocs, the faculty, and others – at the local institution and in the larger research community.

  - Every postdoc needs to have opportunities to practice learned skills and to receive feedback.

  - Every postdoc should receive career counseling, and this should involve interactions with researchers who have personal experience with career choices in industry, in federal laboratories, as well as in a university.

  - Postdocs need to network with researchers not just at their home institution, but at meetings of their research community

- Define meaningful and observable *metrics* with which to evaluate the quality of implementations of those practices. Is it possible to achieve a

generally accepted set of metrics – and on diverse, hopefully innovative, implementations appropriate to different circumstances in research organizations?

- Measure effectiveness of those implementations and provide data to the community. Implementations developed by awardees should apply broadly across the various sub-disciplines within CS&E. Implementations may differ somewhat in different laboratories, departments and institutions.   But they should be readily transferable across multiple institutions.

- On at least an annual basis meet with other PostdocBP Principal Investigators (PIs) to share experiences, metrics and measurement data and to collaborate on a joint (annual) document to inform the CS&E community on what has been learned about implementations of best practices, metrics, and measured data that characterizes grantee activity.

    - The intent of the PostdocBP project is to establish practices that are similar across all CS&E research institutions: academic, industrial, and governmental. A desirable outcome is that postdocs can expect similar treatment and excellent experiences from any host institution and mentor.

    - Collaboration among awardees, via annual PI meetings or other ad hoc interaction, is intended to align thought and action across as wide a set of CS&E research institutions as possible.

- Describe how the host institution or department assures that every postdoc receives quality experience, and steps in to solve problems, should they arise.

- Assure sustainability; the proposal should describe mechanisms to sustain the postdoc support after termination of the grant. The proposal must describe how – after the grant is over – implementation of best practices will affordably continue at the institutions involved.

Articulations of best practices. At least three documents already exist:
- The CRA website hosts a document entitled **Computer Science Postdocs – Best Practices** (http://cra.org/resources/bp-view/best_practices_memo_computer_science_postdocs_best_practices/).

- The most recent major study by the National Academies of postdoc support across all sciences and engineering disciplines is entitled **Enhancing the Postdoctoral Experience for Scientists and Engineers: A Guide for Postdoctoral Scholars, Advisors, Institutions, Funding Organizations, and Disciplinary Societies** (http://www.nap.edu/catalog.php?record_id=9831).

- The National Academies is preparing a report on the management of postdoc in the life sciences, entitled **The Postdoctoral Experience Revisited: When the Ideal and the Reality Diverge**.

These documents have considerable overlap. There may be some room to refine best practices, but the main challenge today is to innovate on their *sustainable implementation* and to rigorously *measure* the effectiveness of those implementations.

In addition, some organizations have developed postdoc training materials and made them available online.

Data on the postdoc community and postdoc experience. The community needs better longitudinal information on postdocs, their training experience and their subsequent career. The Computing Research Association will be working to define what data is needed, and will work with the National Science Foundation (NSF) to gather such information over the years, informed by the reports from awardees. One objective of the PostdocBP project is to formulate data-gathering practices that can be sustained by CRA, NSF, or others.

Use of grant funds. Funding may be used to support appropriate salary for the principal investigator (PI) and staff, to facilitate experiential and training activities, and generally to support implementation, e.g. some travel, career counseling, training materials development, and consensus activity participation. No funding for postdoc stipends or fellowships may be requested as part of this grant. No equipment funding is available.

A proposer may request to augment his or her proposal (and proposed budget) in order to lead and manage the consensus process in which grantee PIs come together on at least an annual basis and author a joint document.

Eligibility. Grantees will be U.S. research universities with the lead PI coming from the CS&E community. We encourage grantees to form consortia involving not only computing research universities, but not-for-profits, industry and laboratories that hire CS&E postdocs. We encourage virtual space approaches. Funds from these awards can only be subcontracted as permitted by the National Science Foundation.

Award Size and Duration. CCC anticipates awarding a total of up to $3.2 million to between 4 and 10 meritorious proposals, each spanning three years. Grant size may vary substantially.

PostdocBP Website. The PostdocBP website can be found at PostdocBP.org. This website contains a number of resources, including FAQs, this request for proposals, and pointers to "best practices" documents for postdocs. FAQs will be updated periodically.

Submitting Proposals. Please let us know if you are preparing a proposal by sending electronic mail to contact@PostdocBP.org. Proposals following the content and format described below should be submitted according to submittal instructions on the website PostdocBP.org/submit by midnight Eastern Standard Time on Friday, November 15, 2013. We anticipate that PIs will be notified about selection within a few months after submittal. If you have questions, please e-mail contact@PostdocBP.org.

Proposal Content and Format. A complete proposal submission comprises the following materials, submitted before the due date specified above:

- Identify best practices that are the basis for the proposal.

- Define the approach for the implementation of best practices.
    - Number of postdocs directly affected by proposed activities
    - Management of the education and training experience for each postdoc
    - Proposed experience for each postdoc
    - Applicability of approach across the CS&E community of institutions and across multiple sub-disciplines

- Define proposed metrics to assess the quality of the postdoc experience and outline the approach to measurement and evaluation of that experience.

- Commit to collaborative sharing of, and documentation of, program content, metrics and measurement data with other awardees and with the CS&E community.

- Explain the proposed commitment to sustainability of the implementation of best practices and how that can be financially supported after the grant period.

- Budget and explanation.

- NSF (proposal) style bios for each Principal Investigator (PI).

- Possible addendum: Proposal to manage the awardee sharing and consensus process, including budget.

The proposal should be no longer than 15 pages, excluding 1) budget, 2) PI bios and 3) any proposal addendum to manage the awardee sharing and consensus process.

Evaluation of Proposals. Proposal evaluation is overseen by a selection committee selected by the CCC Council. The selection committee will consist of

Council members and other appropriate individuals without conflict of interest that taken together are broadly representative of the CS&E community.

Proposals will be evaluated based on:

- Quality of the statement of best practices.
- Innovative experimental implementations.
- Crisp, insightful definition of metrics and how to evaluate results.
- Applicability of the implementation to all sub-disciplines across the CS&E field and portability of the implementation and metrics to other organizations.
- Potential for grant activity to impact a substantial number of postdocs.
- Commitment of the proposing institution(s) to long-term implementations, with plans of how to cost-effectively sustain those implementations.
- Agreement of the Principal Investigator(s) to work with other awardee PIs and others in the community to determine implementations and metrics for implementation of best practices.

Award Administration. Awards will be administered through the Sponsored Project Offices at host organizations.

Additional information. For further information please consult http://PostdocBP.org. Additional questions may be directed to contact@PostdocBP.org. As appropriate the steering committee will post questions and answers on the website.

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