CALL FOR PROPOSALS

RENCI @ Duke Faculty Engagement Program in Applied Scientific and Information Visualization

Due March 31, 2012

The RENCI @ Duke Faculty Engagement Program provides faculty members and researchers of all domains and disciplines at Duke University the opportunity to address pressing research issues that stand to benefit from the addition of advanced scientific or information visualization expertise. In close partnership, awardees will have access to RENCI engagement center resources and staff, including use of the RENCI engagement facilities on the Duke campus. They will collaborate in a multi-disciplinary environment and will be able to leverage RENCI's wide-ranging expertise in applied scientific and information visualization

The goal of the program is twofold: 1) to expand the use of advanced visualization tools and expertise by members of the Duke faculty towards advancing their work to new levels of academic achievement, and 2) to set the stage for future externally funded proposals and awards. Successful applicants will be expected to generate concrete deliverables such as new methods, models, applications, or prototypes that can be used as the basis to develop larger efforts supported with extramural funding.

This is the second round of the RENCI @ Duke Faculty Engagement Program. Please see http://www.renci.org/focus-areas/biosciences-health/radiation-treatment# for a description of an ongoing collaboration between RENCI and Duke faculty researchers that began in response to the first iteration of this program.

OVERVIEW

The Renaissance Computing Institute (RENCI) is a major collaboration first established by Duke University, North Carolina State University and the University of North Carolina at Chapel Hill in January 2004. The RENCI mission was expanded in 2005 with recurring funding from the State of North Carolina. RENCI is committed to fostering multidisciplinary collaborations with scientific communities, research institutes, businesses, government agencies, humanities and social science scholars, students, underserved audiences, artists and educators across the state of North Carolina, the nation and the globe.

RENCI has designed and deployed the most advanced statewide-distributed visualization infrastructures in the country, and its highly regarded visualization staff includes Ph.D.-level experts in computer graphics and the scientific and information visualization subfields. Information visualization is defined as visual representations of abstract data to reinforce human cognition, thus enabling the viewer to gain knowledge about the internal structure of the data and causal relationships in it. Scientific visualization, including medical visualization, involves the multidimensional rendering of scientific data and phenomena into meaningful images that are recognizable and realistic. Both fields allow emergent patterns in data to be visually ascertained and explored that would not otherwise be accessible from relationships in underlying database structures.

Additionally, the RENCI visualization staff has developed a highly capable extensible map-based visualization environment.

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More information about RENCI and the visualization group can be found at http://www.renci.org/ and http://www.renci.org/focus-areas/visualization.

DUKE ENGAGEMENT CENTER
RENCI's Engagement Center on the Duke campus opened in spring 2008 and supports the use of advanced visualization and computational methods to explore issues in science, engineering, the arts, humanities, and social sciences. Centrally located in the Telecom Building on Duke University's West Campus, the facility offers high-definition videoconferencing and networking capabilities and an in-house staff of specialists in visualization and informatics available for consultation, collaboration, and grant development support. An iRODS shared file system ties the facility to other RENCI engagement sites at universities around the state, promoting collaboration, sharing of code and ideas, and serving as the basis for novel sponsored research.

In addition, RENCI visualization staff will be available to work with you in your lab environment utilizing specific imaging, HCI (human-computer interaction), virtual- or augmented- reality, display, or related non-RENCI campus hardware such as the DiVE located in 1617A CIEMAS/Fitzpatrick Center. http://vis.duke.edu/dive/overview provides a description of the Duke DiVE environment.

ELIGIBILITY
This program is available to full time Duke faculty and researchers and is scheduled for duration of one year with a critical review six months into the project. Short extensions may be considered depending on project status and potential impact of continuation. Awardees will be expected to be actively involved in collaborating with RENCI staff members at the RENCI Engagement Center in the TelCom Building during their appointment.

PROGRAM RESOURCES
Awardees will have the on-site support of visualization experts at RENCI's Duke Engagement Center as well as the intellectual support of the broader RENCI visualization group distributed across the three Triangle universities and other general RENCI staff. This includes expertise in database management, data mining, scientific and information visualization, large data manipulation, image processing, and high performance computing.

FINANCIAL STIPEND: $12,000 for each of two anticipated awards.

APPLICATION PROCESS
Faculty members interested in the program should submit proposals by March 31, 2012, and the approximate term of the twelve-month engagement will commence June 1, 2012. Proposals should be no more than four (4) pages. Documents should be double-spaced in a 10- to 12-point font with one-inch margins. The proposal should be understandable to readers outside the field of study and indicate the benefits of collaboration with RENCI. Proposals should be sent as PDF documents via email to Steve Chall (stevec@renci.org).

PROPOSAL REQUIREMENTS
1. Project description. A clear and detailed statement describing the focus of the proposed work, the problem addressed by the work, any external sources of funding, and proposed plans for the project during the appointment time, including specific milestones. This description should outline how the proposed research will be advanced by incorporating visualization methodologies.
2. Collaboration. Applicants should articulate how they or their research team intends to work collaboratively with RENCI staff and the desired benefit expected from the collaboration.

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3. Summary of present activity. Include a short discussion of recent and current projects and their relevance to the proposed effort.
4. Sustainability. Include a plan for the continuation of the work beyond the term of the program, including potential external funding opportunities.
5. Biographical sketch. A one-page biographical sketch is required from each of the primary investigators – there may be more than one, particularly for multidisciplinary proposals – and may be included as an addendum to the 4-page proposal.
6. A one-page budget detailing proposed funding for personnel and equipment requirements.

EVALUATION
Proposals will be evaluated by a multidisciplinary committee comprised of Duke faculty and RENCI staff using the following criteria:

• **Future Sustainability.** Preference will be given to projects that demonstrate a compelling need for visualization expertise and have a strong likelihood of leading to longer term, externally funded research projects.
• **Impact and significance.** Proposals that have the potential for broad scientific impact on society in general and the state of North Carolina in particular are encouraged.
• **Level of collaboration with RENCI and the Engagement Center.** Preference will be given to proposals that show a strong level of collaboration with RENCI and that utilize the Duke Engagement Centers' visualization expertise.
• **Project deliverables.** Projects that have concrete deliverables and products such as prototypes, models, methods or applications that can be deployed are encouraged.
• **Multidisciplinary collaboration.** Projects that cross disciplines and involve cooperation among diverse experts and disciplines are encouraged.
• **Need for novel visualization techniques.** Researchers are encouraged to present novel approaches that have not been tried before and that challenge the status quo with regards to the use of visualization techniques.

NOTIFICATION
All those who submit proposals will be notified of their status by April 30, 2012.

QUESTIONS
For questions, clarifications, or any other additional information about this program, please contact Steve Chall, RENCI Senior Research Visualization Developer, at stevec@renci.org or 919-681-9639. Where appropriate, queries will be forwarded to other RENCI researchers who have knowledge in a domain especially pertinent to the request.

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