National Institute of Biomedical Imaging and Bioengineering

Department of Health and Human Services
National Institutes of Health

July 23, 2008

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Dear Dr. Kikinis:

The NIH NA-MIC Center Team has reviewed your annual progress report (5 U54EB005149-05). We are happy with the progress you and your team have made over the past year. The team is particularly pleased with the extent to which you've been able to diversify your biomedical application areas. We continue to be impressed with the diverse teams and tools that are integrated within NA-MIC under your leadership.

We have a few matters which we'd like you to address before the next award is made. Please try to send responses to these matters as soon as possible, but no later than 5 PM on Wednesday July 30, 2008. There are several other matters, which we've listed separately, for which we'd like a response but can wait until after the August 1 budget date.

Please address promptly:

- What progress has been made with the MGH subcontract in the past year?
  - There's no progress report summary following the Statement of Intent for MGH (page 42). We recognize that MGH's budget was significantly reduced this past year, as a good portion was re-budgeted to Washington University beginning in December 2007. Nevertheless, we expect some progress to have been made.
  - The scientific progress report lists MGH as participating in some efforts (Shape Based Segmentation and Registration; Spherical Wavelets; and Shape Analysis with Overcomplete Wavelets), but there are no MGH personnel listed as key investigators for that section.
  - With regard to future work (Dr. Fischl's consultation), the statement of work refers to "integration of FreeSurfer with ITK and 3D Slicer." What does that mean? Wasn't that effort abandoned.
- What progress has been made with the UCLA subcontract in the past year?
  - There are no publications listed in progress report. A search of NA-MIC publications database shows only one paper with Art Toga or Nathan Hageman's name on it, and that's the iTools paper (from the Software and Data Integration Working Group).
  - Timeline information is out of date. It has not been updated to reflect the changes in the statement of work that was agreed upon in August 2007.
- Regarding the Brachytherapy Needle Positioning Robot Integration DBP:
  - Which grant is funding the patient data collection? If it is supported by NA-MIC, please let me know because NIBIB will have to approve your Data Safety Monitoring Plan.

- There seems to be some scientific overlap between this project and other NIH-funded grants, R01 EB002963 (PI: Whitcomb [previously Fichtinger]) and R01 CA111288 (PI: Tempany). The statement of work for the NA-MIC subcontract states, "The deliverables of the contract is professional-grade clinical software engineering of the above modules based on the NA-MIC toolkit (to the extent reasonable and possible) and to develop end-applications based on Slicer, for clinical trials in image-guided prostate biopsy." However, this goal also falls within the System Integration aim (Aim 3) of the NCI grant and the System Integration aim (Aim 3) of the NIBIB grant. Please provide us with additional clarification to distinguish these projects in terms of their aims. Also, please confirm that Dr. Gobbi and Mr. Vikal are being supported at no more than 3 and 6 months, respectively by other grants (as they are listed for 9 and 6 months on the NA-MIC subcontract).

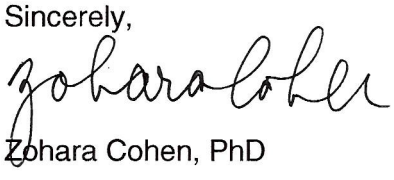
- The progress report is somewhat confusing as to whether FreeSurfer is being used to study cortical correspondence. On page 250 (Section 3.2) a collaboration between MGH and MIT is mentioned with respect to cortical correspondence, while the UNC progress report states that MDL is being used to explore cortical correspondence. Please clarify.
- Kitware is working on a text, "Practical Software Process", to document the NA-MIC software process. How will that be distributed? Will NA-MIC funds cover all the costs so that the text can be distributed free of charge?
- What does it mean when you say that you NA-MIC hosted the Workshop on Open Source and Open Data at MICCAI 2007? Did NA-MIC providing financial support? Set the agenda? Invite participants? Please clarify.

<u>Questions for non-urgent consideration:</u>

1. Systemic Lupus Erythematous project at MIND:
   - Has this project driven any new algorithm development?
   - Have the new tools been tested on other lesions? What other sorts of lesions are likely to benefit from them?
   - Has manual segmentation (which is serving as the gold standard for this project) been shown to have low inter-observer variability?
2. Structural Image Analysis:
   - Is NA-MIC supporting the UNC-led (Martin Styner) 3D Segmentation in the Clinic Workshop at MICCAI 2008? If so, in what ways?
   - Does NA-MIC have any process planned for eliminating an algorithm from its toolkit if a competing algorithm outperforms it?
   - Are there any plans to integrate results from the segmentation workshop into documentation for Slicer in such a way that they are readily accessible to users choosing between Slicer modules?
3. Some concerns were raised regarding the blurring of the distinction between NA-MIC, ITK and VTK. We recognize the contributions that NA-MIC-funded programmers have made to both ITK and VTK and we recognize that the relationship between NA-MIC and the other toolkits is beneficial to a broad development and user community. However, in some cases there seems to be insufficient acknowledgement in the report of the tools that predated NA-MIC and helped lay the groundwork for it; for example CMake and DART.
4. XNAT is open-source using the XNAT License. What does that mean? Is it different than the NA-MIC license?

5. Isomics' statement of work states: Significant effort will be devoted to re-architecting core components of 3D Slicer to make them better interoperate with other NA-MIC tools. Wasn't Slicer developed in parallel with NA-MIC tools? How have incompatibilities arisen?
6. The report includes no specific information on progress at UCSD in developing and supporting grid computing for NA-MIC.
7. Please tell us a bit more about the training core's program to provide one-on-one mentoring (it's mentioned in the timeline, but there's no information on the Wiki). How is it structured? Who can be mentored? How does one arrange for mentorship?
8. Some updates to the timeline are needed:
   - The timeline for MGH indicates that many of the tasks have been modified, but these modifications aren't listed in the table of timeline modifications.
   - Why not list Wash U in the timeline for the appropriate tasks?
   - Certain tasks have been removed from the Utah aims because they have been "subsumed by Core 1-2 partners", presumably MGH. Now that the plans have changed so that MGH no longer plans to do this work, this needs to be updated.
   - Has there been progress in the migration from LONI to batchmake? It is not yet listed as complete in the Isomics timeline.
   - Based on the timeline, Kitware has completed its tasks. Some new tasks are listed in the statement of work and should be entered into the timeline.
9. For the future (assuming and hoping there is a future!), it would be nice to have publications listed at the end of each relevant section (in addition to the Additional Information links currently provided). Several members of the Center team commented on the lack of details in the progress report and wanted to follow up by reading the relevant publications.

Sincerely,



Zohara Cohen, PhD

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