

San Diego Supercomputer Center

Academic Review Criteria

Research Scientist Series

Computational Molecular Dynamics

Conventions in the Field

The field of Computational Science, including Computational Molecular Dynamics, needs two kinds of advances: advances in the computational tools, whose enhanced capabilities enable newer scientific discoveries, and advances in the enabled science itself. For the former, a project scientist is evaluated in terms of their research product (mostly a software module) and that they release a major version every couple of years, and have an accompanying publication. For the latter, it is a combination of the scientist's own science papers and the number of citations of the new software (or software versions). The scientist is expected to have about one or two first/senior authored papers per year.

Conventions in the Unit

At the San Diego Supercomputer Center (SDSC), we mostly follow the convention of the Field. But we put more emphasis on the first aspect. We expect our scientists to show productivity by developing improved software not only by its functionality but by achieving improved computational efficiency. When a scientist produces software, we expect either a new software product or a significantly new module or significantly new experimental results toward the production of the above every year.

Computational Science

Conventions in the Field

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Conventions in the Unit

At SDSC, we mostly follow the convention of the field, but we put more emphasis on the first aspect. We expect our scientists to show productivity by developing improved software not only by its functionality, but by achieving improved computational efficiency. When a scientist produces software, we expect either a new software product or a significantly new module or significantly new experimental results toward the production of the above every year.

Networking

Conventions in the Field

In the Networking field, Research Scientists author/coauthor publications on the order of at least two publications in major science venues each year. Over time, publications of a Research Scientist should build a citation history that supports a reputation for quality research that advances the field. Research Scientists present their work at major conferences and workshops, serve on program committees and other committees where they peer review publications in their field, stay abreast of current research in their field, and promote and pursue collaborations.

Conventions in the Unit

In the area of Network Measurement Research, we mostly adhere to the same guidelines as the field. However, it is important to ensure that the Research Scientist works independently, but establishes collaborations to include members of UCSD and other academic communities. Eventually, Research Scientists are expected to become PIs on multi-institution collaborative grants. We normally expect 1-2 significant data sets, software module, or tools per review cycle, as well as 3-4 publications. Since part of our mission is to influence standards we expect them to be members of technical advisory group for standards/policy/guidelines (e.g. Internet Engineering Task Force (IETF), Federal Communication Commission (FCC), Internet Corporation for Assigned Names and Numbers (ICANN), Broadband Industry Technical Advisory Group) and so on.

Scientific Information Management

Conventions of the Field

In the Scientific Information Management field, Research Scientists author/co-author publications on the order of at least two publications in major science venues each year. Over time, publications of a Research Scientist should build a citation history that supports a reputation for quality research that advances the field. Research Scientists present their work at major conferences and workshops, serve on program committees and other committees where they peer review publications in their field, stay abreast of current research in their field, and promote and pursue collaborations.

Conventions in the Unit

In the area of Scientific Information Management, we mostly adhere to the same guidelines as the field. However, it is important to ensure that the Research Scientist works independently but establishes collaborations to include other members of the UCSD and other academic communities. Eventually, Research Scientists are expected to become PIs on multi-institution collaborative grants. We normally expect 1-2 significant data sets, software modules, datasets or tools per review cycle, as

well as 3-4 publications. Since part of our mission is to influence standards we expect them to be members of technical advisory group for standards/policy/guidelines.

Scientific Workflow

Conventions in the Field

In the domain of Scientific Workflow, Research Scientists generate new kinds of software systems that form the center of the project. In addition, they author publications on the order of at least two publications in major computer science venues each year. Typically, their primary research is judged by the acceptance and use by one or more scientific communities. It is expected that the new modules and publications of Research Scientists will be aligned with the needs for advancement of a user community and at the same time will advance the field of research itself.

Conventions in the Unit

In the area of the automation of scientific workflows, we mostly adhere to the same guidelines as the field. However, it is important for us to ensure that the Research Scientist works within the specifications of the central software stack of the project, and it is very important for him or her to establish collaborations with the user communities and understand their user and technical needs. Based upon a judicious assessment of these needs, we expect the Research Scientist to develop innovative extensions to the software stack, such that it generalizes the needs of a specific user group and produces publishable papers and software. A Research Scientist is expected to engage in University service and professional activities. In addition, they author publications on the order of at least two first/senior author publications in major computer science venues each year. They are independently funded as PI on grants.

Project Scientist Series

Structural Biology and Bioinformatics (Assistant Project Scientist)

Conventions in the Field

In the field of Structural Biology and Structural Bioinformatics, an Assistant Project Scientist is expected to publish several moderately significant peer-reviewed papers on average every two years, at least one first-authored paper would be preferred. As a contributing scientist in the field, he or she is expected to identify user needs, monitor new research directions and develop novel solutions. With time, he or she may also be involved in national or international committees that develop new standards or decide on future funding opportunities, and serve as a reviewer on papers and grant applications.

Conventions in the Unit

At SDSC, the Structural Bioinformatics unit is part of the RCSB Protein Data Bank organization funded by a large center grant by NSF, NIH, and DOE. The unit at Rutgers University provides data deposition and annotation services, whereas the unit at SDSC provides data access, query, analysis, reporting, and visualization for the RCSB Protein Data Bank. In addition, the SDSC unit seeks independent funding for supplementary projects that are not part of RCSB PDB's core mission. An Assistant Project Scientist at SDSC would contribute to parts of the RCSB PDB competitive grant application, and also seek supplementary grant applications that go beyond the core mission of the RCSB PDB, or training grants for students (i.e., sponsored summer courses or travel grants).

Structural Biology and Bioinformatics (Project Scientist)

Conventions in the Field

In the field of Computational Structural Biology and Bioinformatics, a Project Scientist is expected to publish at least two first-author/senior-authored papers or several moderately significant peer-reviewed papers on average every two years. As a contributing scientist in the field, he or she is expected to identify user needs, monitor new research directions and develop novel solutions. With time, he or she may also be involved in national or international committees that develops new standards or decides on future funding opportunities, and serve as a reviewer on papers and grant applications.

Conventions in the Unit

In the area of Computational Structural Biology and Bioinformatics, SDSC adheres to the same guidelines as the field.

Scientific Information Management

Conventions in the Field

In the Scientific Information Management field, an Assistant Project Scientist is expected to publish several moderately significant peer-reviewed papers on average every two years, at least two first-authored papers would be preferred. As a contributing scientist in the field, he or she is expected to identify user needs, monitor new research directions and develop novel solutions. With time, he or she may also be involved in national or international committees that develop new standards or decide on future funding opportunities, and serve as a reviewer on papers and grant applications.

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