Florida Atlantic University

Center for Complex Systems

Program Review

February 23-24, 2015

Review Team:

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More formally, the review team was asked to address the following three stated goals of the Center:

    1.

important criterion for the future direction of the Center should be investment in multiple approaches, including a diversified hiring plan that leverages multiple approaches in human neuroscience While the current search is already far along, this consideration should be taken into account when planning for all future searches, not only at the level of the Director.

3.   Additional faculty lines   how many, in what areas, and strategic implications

Our core recommendation is that the Center hire a Director with a strong research program and national/international stature in computational neuroscience. The job of the Director should be to   in computational neuroscience by making at least 2 additional appointments of individuals with strong expertise in computational neuroscience. This recommendation speaks to the history of the CCSBS,

One of the outstanding aspects of CCSBS is a stellar track record in training graduate students who in many cases have then gone on to pursue illustrious academic/scientific careers. In light of this, the level of graduate support for graduate fellowships is

impediments that we are not aware of.

7.   UG initiatives

One of the initiatives proposed in the Self-Study Report is a new undergraduate program in Complex Systems. This degree program would be inherently interdisciplinary in nature, blending educational components that center on theoretical foundations of complex systems, experimental design, computational modeling and research/educational experiences in a variety of fields including brain sciences, behavior, health and economics. Successful students are envisioned to enter careers in data analytics and information management, in addition to graduate training in various scientific disciplines. The self-report identifies this new degree program as creating a need for additional teaching faculty in this area, which could also provide a rationale for increased hiring in the Center.

We are skeptical as to the feasibility of this proposal, and recommend that steps towards such an undergraduate degree be incremental and gradual in nature. It is important first to assess the value and appeal of such a program before fully committing to it.

8. Summary - Strategic Direction

CCSBS is at a critical time in its history. Given where the Center has been strong in the past, and given where the committee sees the science moving, we recommend refocusing the Center on computational neuroscience. We emphasize the broad nature of the field

                                                                                systems,
time series analysis, network and graph theory, multivariate statistical methods, computational neuroanatomy, AI and robotics, computational psychiatry, and beyond. A strong investment in these diverse fields is needed   in the form of a visionary new Center Director and additional faculty hires. The outcome will be: a) a rejuvenation of the CCSBS and reaffirmation of its national/international status; b) improved chances of success in attracting external funds; c) strengthening of the graduate program in terms of high-caliber applications and high-quality training.

RECOMMENDATIONS

Response to Self-Study Questions

In its self-study, the Center asked for general recommendations for program improvement and responses to specific questions. This section addresses those

Can you comment on our hiring plan and identify emerging trends that are good matches for our programs (research, PhD, and planned undergraduate degree in Complex Systems)?

As outlined in our assessment above, we recommend that the future direction of the CCSBS be focused on computational neuroscience. We strongly urge a broad approach to this area that includes previous areas of strength (dynamical systems) but also builds expertise in circuit models, data analysis and data science, network approaches, information theory applications (neural coding), computational psychiatry, and other related fields. The key next step is the hire of a new Center Director. Ideally, this new Director would be mid-career (tenured associate/early full pr