Call for PhD projects in the eSSENCE and SciLifeLab graduate school in data-intensive computing 2021

The graduate school addresses the challenge of data-intensive science both from the foundational methodological perspective and from the perspective of data-driven science applications. The school should be an arena where experts in computational science, data science and data engineering (systems and methodology) work closely together with researchers in (data-driven) sciences, industry and society to accelerate data-intensive scientific discovery. The school should work actively to create synergies between the involved Strategic Research Initiatives (SRAs), add complement related strategic initiatives at the university and nationally, as well as actively encouraging collaboration with industry and society.

The school is now opening its first call for up to 10 PhD projects, of which at least 4 projects in the area of data-driven life science. The call is open for main applicants at Uppsala University to acquire funding for PhD projects. The funding will cover a part of the salary of a PhD student for 4 years (500 tSEK/Year). The remaining cost has to be covered by the applicant or the department where the PhD student will be registered. Successful applicants and financed PhD students will be a central part of the graduate school research environment that will be organized by the eSSENCE and SciLifeLab Uppsala nodes. Participation in research school activities and seminars/workshops by both PhD students and applicants is therefore a prerequisite for funding. There will be a mandatory course package of 15 ECTS credits in core eScience methodology relevant to data-intensive science.

Scope of the call

A PhD project in the school should involve both application and methods research, but the main weight can be either on the data-driven application or on the methodology development.

Methodology and system research
eScience tools and techniques, with a particular focus on methods development in data-intensive Data Science and Data Engineering forms the core of the school. Data engineering sciences as defined here encompasses several core areas in eScience, including distributed computing, high-performance computing, analysis of large, diverse, and/or high-velocity data, large-scale distributed machine learning, and methodology and systems challenges directly related to data-driven science. It also includes research on systems to support such analysis. Theory, methods and systems for data science using private, sensitive

and decentralized data, security, trust and data quality are also core challenges addressed by the school.

Data-driven applications
Data-driven and data-intensive science in all scientific areas are at the core of the school. We anticipate that all PhD projects with the primary focus on the data-driven application side are such in nature that they have the need to use or further develop state-of-the art in one or many of the methodology challenges listed above for the project's successful completion.

Evaluation

Applications will be evaluated on scientific quality and novelty, feasibility, societal impact of the research question posed and cross- & multi-disciplinarity.

Process:
- The call is now open and closes on November 8 2021.
- Proposals are evaluated and ranked by external expert reviewers (November) and by the eSSENCE and SciLifeLab management teams.
- The graduate school steering group makes the final funding decision (November).
- Successful applicants will be asked to write a formal call text for the respective PhD student position. To facilitate a coordinated start of the research school all PhD positions will then be simultaneously announced late 2021, with effective enrollment of the students in the first half of 2022.

Eligibility to apply
- The main applicant shall be employed at Uppsala University at the time of the application. For the up to six positions in any area of data-intensive science, co-applicants can come from other Swedish universities, abroad or from industry, but for the 4 PhD positions in life science all co-PIs should be employed by Uppsala University.
- Each applicant is allowed to submit one application as main applicant, and one application as co-applicant.
- The PhD student shall be registered at Uppsala University.
- In submitting the application, the PIs confirm that they will participate in the activities of the graduate school and that the PhD student includes the joint course curriculum in the study plan.
- The head of the department at which the main applicant is located must sign the application and in doing so guarantee that the PhD student will be hosted within the department and that co-financing exists for the remaining part of the salary.

For questions about the call: coordinator@essenceofscience.se