Mathematics for AI
Call for graduate student projects

1 Background

The expansion of Artificial Intelligence (AI), in the broad sense, is one of the most exciting developments of the 21st century. This progress opens up many possibilities but also poses grand challenges. The center Wallenberg AI, Autonomous Systems, and Software Program (WASP) is launching a program to develop the mathematical side of this area. The program will be conducted in close cooperation with leading Swedish universities with an aim to promote the competence of Sweden as a nation within the area of AI.

2 Aims and call

The purpose of this call is to recruit graduate students to the graduate school which is currently being set up in the area of mathematics relevant to AI. This graduate school will share many features with the existing WASP graduate school.

The call is by invitation only and is targeted towards Chalmers/Gothenburg University, Linköping University, Lund University, Royal Institute of Technology, Stockholm University, Umeå University, and Uppsala University.

An application is submitted by a researcher with a faculty position at one of the universities listed and should be approved by the head of department (or equivalent representative of the university). The application should contain information about the items below. The required format is a single pdf document for which the maximum lengths of each section are indicated below.

- The research area in which the position as graduate student is to be announced. For a more closely targeted proposal it is sufficient to describe a research project. Please indicate the "forskarutbildningsämne" of the student. 2 pages.

- A discussion on how this area/project links to AI. 1 page.

- The CV of the intended main advisor including a description of his/her current research area. 2 pages.

- For projects of interdisciplinary nature include a CV of an assistant supervisor from a different field. This is not needed if the project is not interdisciplinary. 1 page.

All documents should be in English.

3   Evaluation process and criteria

All proposals will be evaluated by the national Program Management group for Mathematics (PMM) within WASP to select around 20 graduate student positions to be advertised. The evaluation criteria include.

- The relevance to the foundations of AI.

- The mathematical quality.

- The qualifications of the proposed advisor(s).

After this selection of proposals the graduate student positions are advertised and candidates evaluated by the normal procedures of the respective universities. The top ranked candidate is submitted to PMM for a coordinated ranking. The group makes a recommendation to the WASP board which makes the final decision which positions to finance.

4   Research areas

The program supports mathematics relevant to AI, where this concept is interpreted in the broad sense. The call is oriented towards long term relevance and foundations as opposed to immediate applications. The focus is on mathematical aspects, but can also include interdisciplinary projects.

5   The graduate school

The graduate school in mathematics relevant to AI under the program WASP is under construction. It will include a set of mandatory courses and some joint activities. The accepted graduate students are expected to take part in these activities. The emphasis of the graduate school will be on mathematics relevant to AI as opposed to AI in itself. We expect to have students in different subject areas but a strong mathematical component is required.

The student will of course also be subject to local regulations of graduate studies at his/her host university.

6   Level of support

A grant covers the salary costs of the graduate student for the duration of the graduate student career, i.e. the cost for four years full time salary possibly spread over 5 years in case the position includes departmental duties. The grant also gives support of 15% of full time for advising, to be split among the advisors. Salary costs are calculated with an "LKP" level of 50 % and may include indirect costs to a maximum of 17.5%. A grant also includes costs related to the project, such as travel expenses, up to a yearly level of 40 kSEK. All costs related to participation in common graduate school activities are covered separately.

The target of this call is to fund a total of 15 graduate students.

7   Additional details

The final decision of funding is taken by the WASP board once a candidate has been selected and is taken based on the overall quality of complete project.

The questions of gender balance and diversity are of central importance. For a position which has two excellent candidates of which at least one is of under-represented gender the possibility of hiring two candidates will be discussed with the hosting university.

Applications should be received by March 25, 2018 at https://easychair.org/conferences/?conf=aimath2018. A short email from the head of department indicating support of the project should be sent to position@wasp-sweden.org. One email covering all proposals within the department is sufficient.

The announcement of which graduate student positions should be advertised will be taken by April 13. To be eligible for funding the chosen candidates are to be submitted by May 31, 2018.

Any questions in connection with this call should be directed to Johan Håstad, by email to johanh@kth.se or by calling 070-565 5211.