PhD fellow in Machine Learning, University of Copenhagen, Faculty of Science, Department of Computer Science (DIKU), Denmark.

The Department of Computer Science (DIKU), Faculty of Science at the University of Copenhagen is offering a 3-year PhD position starting July 1st, or shortly thereafter. The goal of the project is to develop new Machine Learning methods for predicting mutation-induced changes-in-stability in proteins. The PhD project is funded by the Novo Nordisk Foundation.

Description of the scientific environment
The research will be conducted in the group of Wouter Boomsma, which works on the development of methods for analyzing molecular structure, ranging from Monte Carlo simulation techniques to deep learning. The group is located within the Machine Learning Section, which provides a strong, international environment for research within Machine Learning, Natural Language Processing and Information Retrieval. The section currently holds about 20 PhD students and 12 postdocs. It is housed within the main Science Campus which is located centrally in Copenhagen. For details, seehttps://di.ku.dk/english/research/machine-learning.

Project description
Predicting how mutations affect the stability of a protein is a central challenge in computational biology, with important applications both in the understanding of human disease, and in the rational design of proteins for industrial purposes. Despite much progress in the area, one fundamental aspect of mutation-induced changes-of-stability prediction remains elusive: dealing efficiently with the structural changes that result from a mutation. The goal of the PhD project is to develop new strategies to address this problem, building on recent advances in machine learning, in particular the idea of learning abstract representations of molecular structure automatically from data. The project will focus on theoretical/methodological contributions, including work on latent-space modelling and rotational equivariant 3D convolutions, but the PhD student will also spend time evaluating the methodology on relevant biological systems. The latter will be supported by close collaborations with both academic and industrial collaborators.

Principal supervisor is Wouter Boomsma, Department of Computer Science, wb@di.ku.dk.

Job description
The position is available for a 3-year period and your key tasks as a PhD student at SCIENCE are:
- To manage and carry through your research project
- Attend PhD courses
- Write scientific articles and your PhD thesis
- Teach and disseminate your research
- To stay at an external research institution for a few months, preferably abroad
- Work for the department

Formal requirements
The applicant should either have a background in Machine Learning or in protein modelling/simulation, and is expected to have significant prior experience with programming (preferably Python). Applicants should hold a MSc degree in computer science, bioinformatics, physics, chemistry, statistics or a closely related field, or be in the final stages of acquiring such a degree. Candidates must have good interpersonal and communication skills. The group is international and fluency in spoken and written English is a requirement. As criteria for the assessment of your qualifications emphasis will also be laid on previous publications (if any) and relevant work experience.

Terms of employment

The position is covered by the Memorandum on Job Structure for Academic Staff.

Terms of appointment and payment accord to the agreement between the Ministry of Finance and The Danish Confederation of Professional Associations on Academics in the State.

The starting salary is currently at a minimum DKK 322,642 (approx. €43,015) including annual supplement (+ pension up to DKK 44,567). Negotiation for salary supplement is possible.

Application Procedure

The application, in English, must be submitted electronically by clicking APPLY NOW below.

Please include

- Cover Letter
- CV
- Diploma and transcripts of records (BSc and MSc)
- Other information for consideration, e.g. list of publications (if any),
- Full contact details (Name, address, telephone & email) of 1-3 professional referees

The University wishes our staff to reflect the diversity of society and thus welcomes applications from all qualified candidates regardless of personal background.

The deadline for applications is 31 March 2019, 23:59 GMT +2.

After the expiry of the deadline for applications, the authorized recruitment manager selects applicants for assessment on the advice of the Interview Committee. Afterwards an assessment committee will be appointed to evaluate the selected applications. The applicants will be notified of the composition of the committee and the final selection of a successful candidate will be made by the Head of Department, based on the recommendations of the assessment committee and the interview committee.

The main criterion for selection will be the research potential of the applicant and the above mentioned skills. The successful candidate will then be requested to formally apply for enrolment as a PhD student at the PhD school of Science. You can read more about the recruitment process at employment.ku.dk/faculty/recruitment-process.

Questions
For specific information about the PhD scholarship, please contact the principal supervisor Wouter Boomsma, wb@di.ku.dk

General information about PhD programmes at SCIENCE is available at science.ku.dk/phd.