



THE SAHLGRENKA ACADEMY
INSTITUTE OF MEDICINE

Department of Molecular and Clinical Medicine
Administrator: Carolina Mattsson
Telephone No: 031-786 54 13
E-mail address: carolina.mattsson@gu.se

Announcement - scholarship at undergraduate/advanced level

The Department of Molecular and Clinical Medicine, Institute of Medicine, hereby announces a vacant scholarship at undergraduate/advanced level in qualitative and quantitative obesity research with a focus on obesity and bariatric surgery.

Training plan

Subject: Identification of predictors of weight regain after bariatric surgery using machine learning.

Background: The Swedish Obese Subjects (SOS) study is a non-randomized intervention study that investigates the long-term effects of weight loss through bariatric surgery. The study started in 1987 and consists of 4047 participants, half of whom have undergone bariatric surgery and the other half comprises a control group (receiving usual obesity care). Follow-up is over 30 years. The SOS study is the only study of its kind in the world in terms of the length and depth of follow-up.

Purpose: Our long-term aim is to use the wealth of data in the SOS study together with efficient machine learning methods to create and validate prediction models for clinical use. The purpose of this project is to identify predictors of weight regain after bariatric surgery. Weight regain is common and thought to be linked to worse health outcomes long-term. It is therefore important to be able to identify factors that can predict weight regain after bariatric surgery as well as evaluate the effects of weight regain on long-term outcomes, including cardiovascular disease, cancer and alcohol-related problems. To achieve this, we will use a range of machine learning methods and build prediction models that will be internally and externally validated. The advantages of machine learning include the ability of modern algorithms to extract hidden patterns in unstructured data, capture non-linear relationships and complex interactions, and perform both supervised and unsupervised learning. The SOS study includes phenotyping, genotyping and very long-term follow-up, making it a unique data source for this specific task.

Method: During the scholarship period, the student will evaluate machine learning tools for prediction models, select the best performing tools and develop models for prediction of weight regain after bariatric surgery.

Time plan: Review and evaluation of machine learning tools (3 weeks). Development and evaluation of prediction models for weight regain after bariatric surgery (5 weeks).

Learning outcome: Upon completion of the scholarship period, the student is expected to have gained knowledge of review and evaluation of machine learning tools, become familiar with the use of Python, R and different machine learning tools and developed skills in using machine learning tools to build prediction models.

Period:

2024-06-03 to 2024-08-30 (8 weeks total)

Financing:

1 payments of 24000 SEK. A total of 24000 SEK for the whole period.

If you require any further information, please contact supervisor Johanna Andersson Assarsson, johanna.andersson@medic.gu.se

Application:

To apply please fill out the form “Scholarship application” and send it to Johanna Andersson Assarsson, johanna.andersson@medic.gu.se

To be eligible for a scholarship you must be a registered student at undergraduate or advanced level at the University of Gothenburg, other Swedish university or an international university with which the University of Gothenburg has a collaboration agreement.

Please attach a copy of your registration certificate with your application. The certificate must demonstrate that you are a registered student throughout the scholarship period.

Closing date is 2024-05-09.