The University of Veterinary Medicine, Vienna is active in teaching and research and provides services in connection with ensuring animal health in Austria. These tasks represent our contribution to maintaining the health of humans and their animal companions as well as to producing healthy food.

Working group "Pigs and PLF" in collaboration with the PLF HUB (both at the Institute of Animal Welfare Science) and the Institute for Computational Medicine are looking for a

PhD student in image analysis for automatized assessment of body condition in gravid sows

Grade: B1
Level of employment: 30 hours
Length of employment: 3 years
Deadline for applications: 31.08.2022

The Working group "Pigs and PLF" and the Precision Livestock Farming (PLF) HUB are part of Vetmeduni Vienna, ranked 8th worldwide (2021 Shanghai Ranking for Universities, Veterinary Sciences) and located in Vienna, consistently ranking as one of the most liveable cities in the world.

Both groups' research focuses commercial pig production and on assisting the management of animals by continuous, automated, real-time monitoring of production/reproduction, health and welfare, hence integrating a bioengineering approach to human-animal interactions with broad applications and benefits. This PhD position is organised in collaboration between the Institute of Animal Welfare Science (Working group Pigs and PLF and PLF HUB) and the Institute for Computational Medicine, both of the University of Veterinary Medicine Vienna.

Project description

This project focuses on the development of a computer vision algorithm for automatized assessment of body condition in group-housed gestating sows based on image data. In the first phase, a suitable measure for body condition shall be identified that is required later on for training the algorithm. In the next step, an algorithm for real-time body condition assessment shall be developed, based on 3D shapes of the sows extracted from image or video data recorded within the feeding station. In the final step, the algorithm will be validated internally and externally. Along with the development of the algorithm, another objective of the project is to determine how individual behavioural parameters (e.g., activity, aggressiveness, water consumption, etc.) affect individual nutritional needs. The project is ideally suited for students with a strong quantitative background in computer science, engineering, or the physical sciences who are experienced with computer vision approaches and deep learning frameworks and who has a passion to do high level applied research in a very engaged and ambitious research team.

Responsibilities

The PhD candidate will be mainly responsible for developing and validating the algorithm for automated assessment of body condition as well as data analyses and publication of the results. The candidate will further be responsible for proper data management and actual data sampling, including physical measures at the animals as well as automated sensor based data sampling. Regarding the latter, however, the candidate will be strongly supported by students, an animal caretaker and a technician. The candidate should therefore be motivated, independent and reliable. The work will be conducted in English language. The starting date is negotiable between August, 1st and October, 1st.

Necessary knowledge and qualifications

- A Master degree in a relevant area of computer science, bioengineering, engineering or equivalent degree
- Fluent in English in writing, reading and speaking (B1)
- Interest in data analysis and programming
- Knowledge in computer programming in Python and R
- Experience with computer vision approaches
- Driver license, Class B (cars)

Desired skills and abilities

- Experience with deep learning frameworks would be a plus
- Experience with sensor use in biology
- Ability to conduct research relatively independently
- Knowledge in behavioural data analysis
- Affinity with pigs or other animals, preferably experience in animal handling
- Scientific publications would be a plus

Contact /Further Information

Ass.-Prof. Dr. Johannes Baumgartner (Project PI, Johannes.Baumgartner@vetmeduni.ac.at)
Dr. Sebastian Vetter (Project Manager, Sebastian.Vetter@vetmeduni.ac.at)

Minimum salary

The minimum salary for university staff is regulated by the collective contract and at the level given above amounts to EUR 2.300,30 gross per month (× 14 months/year). The minimum salary may be increased when previous employment and other salary components are taken into account.

Applications

Please submit your applications to one of the email addresses listed above, including a letter addressing the selection criteria (necessary knowledge and qualifications, desired skills and abilities) in 1 to 2 pages, a full CV, a list of two references, and a letter of motivation describing your research interests, experience and goals.

The Vetmeduni Vienna is attempting to increase the proportion of female staff, particularly in senior positions, and in accordance with § 41 of the 2002 Universities Act it is striving to attain a balanced representation of men and women, especially on its scientific staff. Applications from qualified women are thus particularly welcomed. If women are underrepresented (below 50%), female applicants who are as well qualified as the best qualified male applicants will be given preference, provided that there are no strong reasons for favouring a particular male candidate.

Applicants have no entitlement to reimbursement of any travel or accommodation costs they may incur as a result of the application procedure.

The Vetmeduni Vienna is proud to have been awarded the certificate "*Hochschuleundfamilie*" (career and family). We are thus be especially pleased to receive applications from people with families. Applications from persons with disabilities are similarly welcome.