Schweizerische Eidgenossenschaft
Confédération suisse
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Swiss Confederation

Federal Department of Economic Affairs,
Education and Research EAER

Agroscope
Animal Production Systems and Animal Health (PST)

INTERNSHIP ON DEEP LEARNING AND IMAGE PROCESSING (PREFERRED START DATE: 01.10.22 or later; DURATION: 6 MONTHS)

A number of new born piglets (called IUGRs) exhibit greater mortality and morbidity risks. The objective of this internship is to develop a computer vision tool using computer tomography and 3D images, able to recognize the IUGR condition in newborn piglets. Images of newborn piglets were taken with a RealSense D435 camera, both in RGB and depth format. From the available dataset, we will explore 3 approaches:

- End to end deep learning approach: Where we investigate the performance of modern computer vision models in recognizing piglets with IUGR.
- Classical computer vision: where we explore manual features extraction followed by the development of a machine learning prediction model: you will use computer vision to extract features from the images and feed these hand-crated features to a machine leaning model.
- 3D reconstruction with RGB and depth images: you will perform 3D reconstruction through an analytical approach or a data driven approach.

This internship will take place at the Agroscope, Posieux (canton of Fribourg), Switzerland. You will be supervised by PhD Nasser Hassan Roland, Senior Data Scientist and AI trainer at Agroscope and co-supervised by Doctor Catherine Ollagnier, Veterinarian and Senior Researcher at Agroscope. You will work in collaboration with Roberta Ruggeri, Veterinarian and PhD student at Agroscope.
Housing will be provided to the intern at Grangeneuve, Institut Agricole, Posieux.

The intern has also the possibility to participate in internal events about computer vision (a workshop will be hold in November and another one in December). He/she would also have the possibility to work on cloud services like Microsoft Azure and benefit from computing resources.

ELIGIBILITY RULES APPLY FOR PARTICIPATION

Knowledge in deep leaning, image processing and Python programming language is required. Additional skills in 3D image processing, use of TensorFlow, PyTorch, Microsoft Azure and OpenCV would be desired. Applicants must be able to understand and express themselves in both written and spoken English.

SELECTION PROCESS

You can apply for this internship position by sending the following information to the email address:
catherine.ollagnier@agroscope.admin.ch

- CV,
- motivation letter,
- copies of University Bachelors/Masters certificates or equivalent

For more information, please contact PhD student Roberta Ruggeri (roberta.ruggeri@agroscope.admin.ch).

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