

Embedded Vision and Machine Learning: Pig Farming in Ukraine

Lemberg Solutions, in close collaboration with Barkom Ltd., have designed a unique proof of concept (POC) for visual farm pig weight monitoring. The POC is based on a complex of non-iterative neural networks and an innovative method of image recognition.

“Ours is not the first attempt to automate animal weight monitoring on farms. Yet — from what we could gather — the existing approaches tend to lack in accuracy and usability. What we are proposing is a unique and functional solution that checks both boxes.”

— Pavlo Tkachenko, Lead Data Scientist at Lemberg Solutions

Barkom Ltd. is a Ukrainian agricultural company that specializes in growing pigs and cattle and selling self-produced food products. One of their biggest challenges lies in regularly measuring and tracking pig weight, as changes in weight are a vital indicator of pig health and development.

When referring to Lemberg Solutions, Barkom was looking to automate:

- Simultaneous weight monitoring in multiple pigs (up to 40 animals at once)
- Accurate tracking of weight in individual pigs over long periods of time
- Early identification of the potential health issues in individual animals.

These goals had to be accomplished in a way that wouldn't pose major disruptions to the existing farm processes and ecosystem.

“The complete lack of training data was our first — and main — challenge when developing the POC. But our efforts to collect the right training data have provided a deeper understanding of the tasks at hand, and hence offered guidance for future system implementation.”

— Lyubomyr Dutko, CTO at Lemberg Solutions

While the POC is still under development, Lemberg Solutions has already created a way to determine a pig's weight from an image of its back with an accuracy close to 2%. Right now, the company is working on finding a way to track the weight of multiple pigs at a time and identify signs of potential sickness.

To learn more about the POC for automated farm pig weight monitoring, come by Stand 4-407 on Tuesday, February 25, at 11:30. There, you can hear the Lemberg Solutions CTO Lyubomyr Dutko speak about the process behind designing the POC, which encompassed developing a

custom system for training data collection, as well as a unique approach to data pre-processing and analysis.

Lemberg Solutions is a technology consulting and engineering company based in Lviv, Ukraine. With more than ten years of experience and a team of 100+, Lemberg Solutions helps clients across Europe and the US build innovative hardware and software solutions.

To meet the company representatives, come by Hall 4, Booth 407 any time, or [send them a quick message to set up a meeting in advance](#).