Abstract - Siegford

Opportunities and risks of digital technology on animal farms: A practical perspective

Automated technologies to monitor and manage farm animals are rapidly being developed and commercialised. A remarkable array of sensors is available to detect animal responses ranging from vocalisations, facial expressions and body temperature to chemicals present in an animal's breath. Applications relying on the power of deep learning and artificial intelligence are being developed to recognise and interpret information collected by these sensors. These technologies have the potential to holistically monitor animals on farm in real time across their lives, which could help us better manage animals as individuals. Early detection of disease or precise tailoring of diets could improve animal health and reduce environmental impacts. Automation of manual, repetitive tasks could free stockpeople to spend more on rewarding care or animal interaction tasks. However, whether technologies can practically deliver all these benefits remains to be seen. Animal environments are hard on technology and require new skill sets from farm workers. Technologies may also not target issues that producers most need help with or may provide simplistic outputs that do not lead to impactful actions. Critical examination of opportunities and risks is needed to develop and use on farm technologies in ways that are beneficial for the animals, humans and environment.

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Revision #4
Created 2026-02-13 04:42:17 UTC by Admin
Updated 2026-02-13 06:08:14 UTC by Admin