Non-intrusive sensor technologies used in agriculture

Abstract

Agriculture production has to become more advanced and efficient as in excess of 9 billion people will need to be fed by 2050. Thus, so-called SMART agricultural technologies have been promoted heavily in recent years and they do have the potential to revolutionize agricultural production as we know it. It is generally believed that agricultural production can become more sophisticated, labor efficient, environmentally sustainable and socially responsible if relevant information is automatically collected, analyzed and resulting knowledge applied on farm. This presentation will use several examples of research work undertaken in Australia aimed at developing various smart AgTech tools to make agriculture production more advanced.

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RESEARCH AREAS AND EXPERTISE
- General area: Animal/agriculture production
- Specific area: PLF & environmental issues

AWARDS AND RECOGNITION
- Ex-President and current Vice-President of the "Australian Society for Engineering in Agriculture" (SEAg)
- Hon. Chair of the CIGR (International Commission of Agricultural Engineering) - Section II and Honorary Vice President of CIGR (2014)
- Vice-Chair of the "CIGR, - Image Analysis for Agricultural Processes WG and external Director of IRCAEW (International Research Centre for Animal Environment and Welfare)
- Member of Editorial Board of the "International Journal of Agricultural and Biological Engineering" the "Journal of IPA" and the "Journal of Agricultural Informatics"
- Best Agricultural Engineering Innovation Award, (2009) SEAg and SA Primary Industry, Breakthrough Innovation (2010)

Thomas Banhazi completed his PhD studies at the University of Adelaide and worked as Research Scientist at SARDI for 17 years before joining the University of Southern Queensland in 2010 as an Associate Professor and the Taiwan National University in 2022 as Full Professor. As part of his academic activities, Thomas has supervised 35+ PhD, Masters and Honors students and involved in the delivery of 8 under and 4 post-graduate courses. Thomas also published 3 edited books, 4 Special Journal Issues (SJI), 57 peer reviewed journal articles, 26 book chapters, 152 conference proceedings and in excess of 120 industry reports/seminar/extension articles. He has successfully obtained 7 patents on a number of innovative technologies in the US and Australia. Thomas has been involved in approximately 40 research projects both in Europe and Australia funded by various government agencies and farming organizations. His expertise is mainly related to PLF applications (sensors, automation and data manipulation) and housing & environmental assessment methods. In his spare time, Thomas is actively involved in hiking/bush walking and various arthouse film clubs. In addition, Thomas is a keen aikido practitioner and an experienced horse rider.