Alper Tuna Kavlak

Alper Tuna Kavlak is a research scientist specializing in the integration of digital technologies, machine learning, and genetic analysis in agriculture and aquaculture. His work focuses on leveraging these tools to enhance sustainability, resilience, and data-driven decision-making, with a primary focus on livestock systems and contributions to aquaculture research.

With a PhD in Animal Breeding from the University of Helsinki, Finland, Alper has made significant contributions to understanding genetic parameters of feeding behaviour and production traits in pigs, particularly through the application of advanced machine learning methods. His academic foundation includes an MSc in Applied Statistics in Biometry and Genetics from Çukurova University, Turkey, where his thesis focused on clustering algorithms for data analysis in animal sciences, and a BSc in Statistics from the same university, with a thesis on optimization techniques. This background highlights his strong expertise in statistical modelling and genetic research.

In his current role at the Natural Resources Institute Finland (Luke), Alper works on projects aimed at improving resource efficiency and resilience in dairy cows through digitalization and genomic selection. He contributes to developing data-driven solutions for real-time livestock tracking and welfare monitoring and collaborates with cross-functional teams to implement AI-based predictive maintenance systems. These efforts bridge cutting-edge technology with practical applications, driving sustainable and efficient livestock management.

Alper’s livestock research includes analysing daily milk yield and feeding time records in dairy cows and exploring feeding behaviour and production traits in pigs. His work identifies resilience indicators, such as responses to environmental disturbances, and investigates heritability and correlations between resilience traits and key productivity and health metrics. By combining traditional genetic methods with machine learning, he pioneers innovative approaches to enhance livestock resilience under challenging conditions.

He has also contributed to aquaculture research by applying computer vision techniques to analyse fish behaviour. Leveraging real and simulated data, he supports sustainable fish farming through AI-driven solutions for early disease detection and automated feeding, addressing key challenges such as feed waste and production efficiency.

Passionate about innovation, Alper's interdisciplinary approach combines technology, genetics, and sustainability to address complex agricultural challenges. He envisions a future where integrated genetic and digital innovations revolutionize food production systems. He also aims to expand his research to explore multi-species resilience and advance precision agriculture on a global scale.

Alper has been actively engaged with the European Federation for Animal Science (EAAP) since 2018. Over the years, he has cultivated strong connections within the community, culminating in his election as a Young Scientist member of the EAAP Cattle Study Commission during the 2024 conference in Florence, Italy.

Outside of his professional pursuits, Alper enjoys the vibrant cultural and natural surroundings of Helsinki. A passionate drummer, he plays in a rock band, finding creative expression through music. In his free time, Alper also explores the scenic beauty of Helsinki, embracing outdoor activities and the rich experiences the city offers.