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## Multi-modal Large Language Models for Sustainability Challenges: Cases in Agriculture and Biodiversity

Masahiro Ryo explores the transformative potential of multimodal large language models (LLMs) for sustainability through two concrete examples: agriculture and biodiversity conservation. He illustrates efficiency gains in agriculture using AI techniques like YOLO, GPT-4, and T-Rex models, significantly simplifying agroecosystem predictions. In biodiversity conservation, he introduces modular “virtual ecologists” performing ecological assessments without extensive coding or training data. Emphasizing a transdisciplinary co-development approach, Ryo highlights how collaborative efforts among stakeholders can enhance model reliability and relevance. He further underscores AI’s potential role in mitigating human cognitive biases, enabling more objective, consistent, and informed decision-making for complex sustainability challenges.

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