Contribution ID: **123**   Type: **Talk**

Image based analysis and crop prediction using smartphone.

Tuesday, 3 December 2024 11:20 (20 minutes)

The 2019 White Paper on Science, Technology, and Innovation in South Africa emphasises the core themes of inclusivity, transformation, and partnerships. Following the introductory discussion with the farmers, it became clear that the majority of them have an urgent need for up-to-date soil-health data and assistance with managing their crops in order to maximize their profits. Addressing this, our consortium aims to create a smartphone app that will empower small-scale farmers with immediate soil-health predictions derived from soil digital images. Additionally, this app will extend its functionality to provide crop recommendations and assist the farmer in smart decision-making by incorporating regular weather updates and nowcasting of local weather parameters. An integrated energy and sustainability management module will be designed to monitor and control energy consumption and carbon emission. This project proposal unites partners from South Africa, Scotland, and Turkey, leveraging their collective expertise in science, agriculture and digital technologies.

This innovation integrates advanced technologies such as digital image processing (DIP), machine learning (ML), and artificial intelligence (AI), with deep-learning algorithms and large language models (LLM) used for ML training, and AI chatbot services for enhanced functionality. The app architecture includes a mobile front-end API connected to a dynamic back-end system, featuring a database, knowledge base, and external APIs, with Python serving as the core programming language. Therefore, this project is using Sebowa Cloud Services – Commercial (4x vCPU, 16GB RAM, 200 GB Disk).

Student or Postdoc?

No. Not a student nor Postdoc.

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