MERIAVINO

Multiscale Sensing for Disease Monitoring in Vineyard Production

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2019 cofunded Call

End-term Project Seminar 30th January 2024

Involved countries and partners

Partner	Type	Country
INSA CVL	Academic	France
CMU	Academic	Romania
SVM	Academic	Romania
UNIWA	Academic	Greece
IFV	Service	France
ATOS	Company	France

Duration : 36 months

Overall budget : 700 K€

Objectives and hypothesis

1

Collect environmental data across various scales to capture subtle changes in the crop.

2

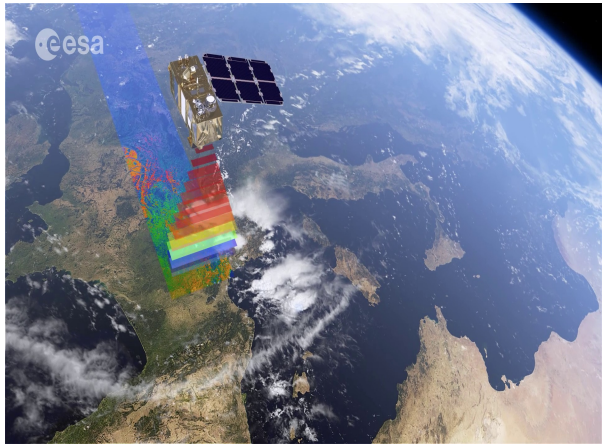
Leverage machine learning and data fusion to achieve early detection of anomalies in vineyards.

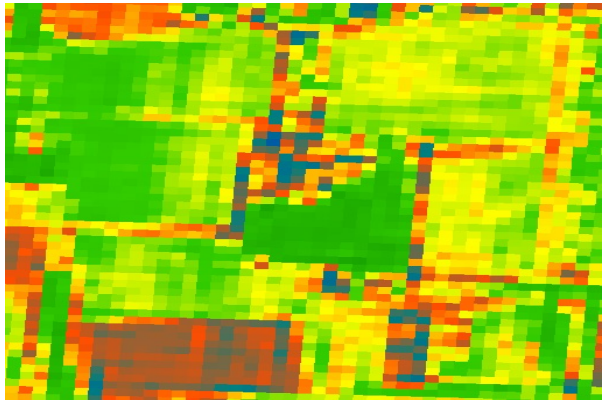
3

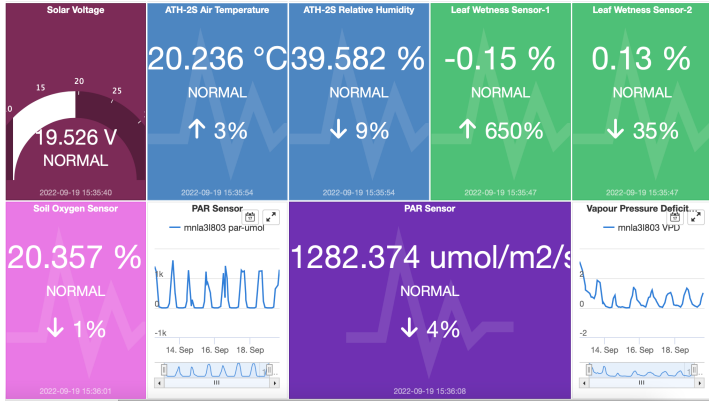
Proof of concept for an AI-driven decision system designed for vineyard monitoring, and decision-making processes.

Heterogenous data from vineyards in different countries will enable to develop robust decision tools based on AI

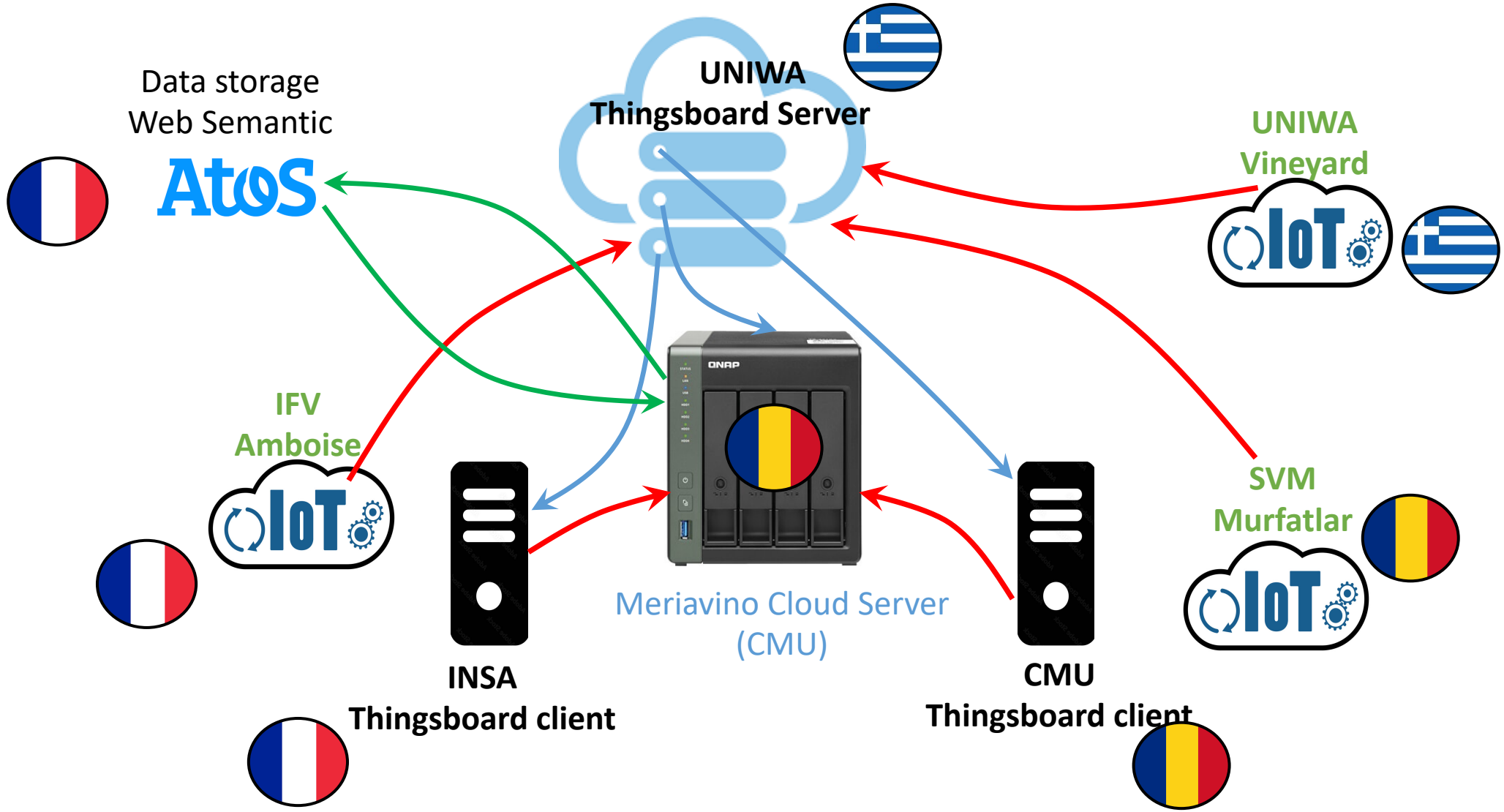
Methodology : multiscale approach



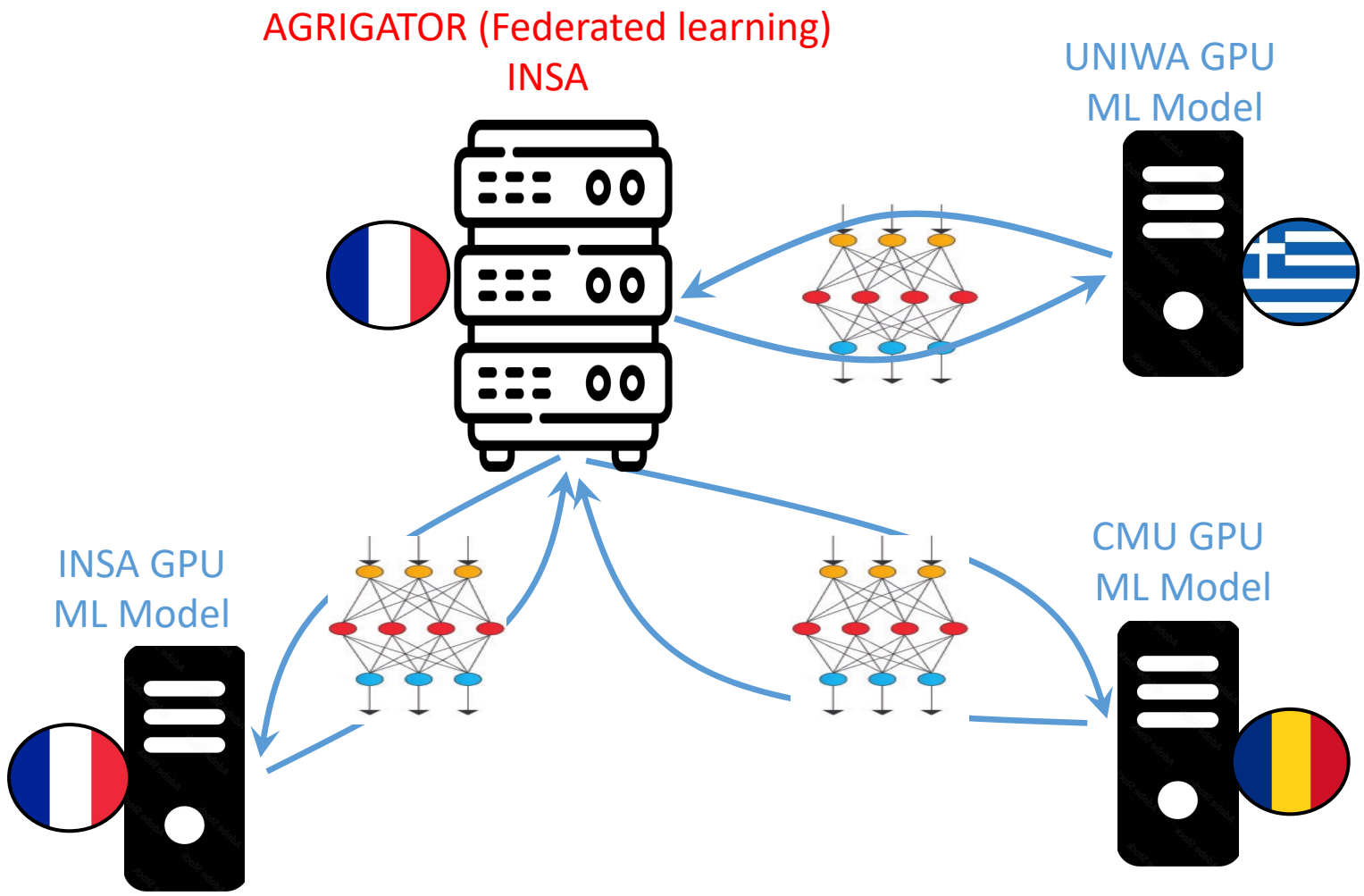




Data acquisition and storage



Data analysis and predection



Results

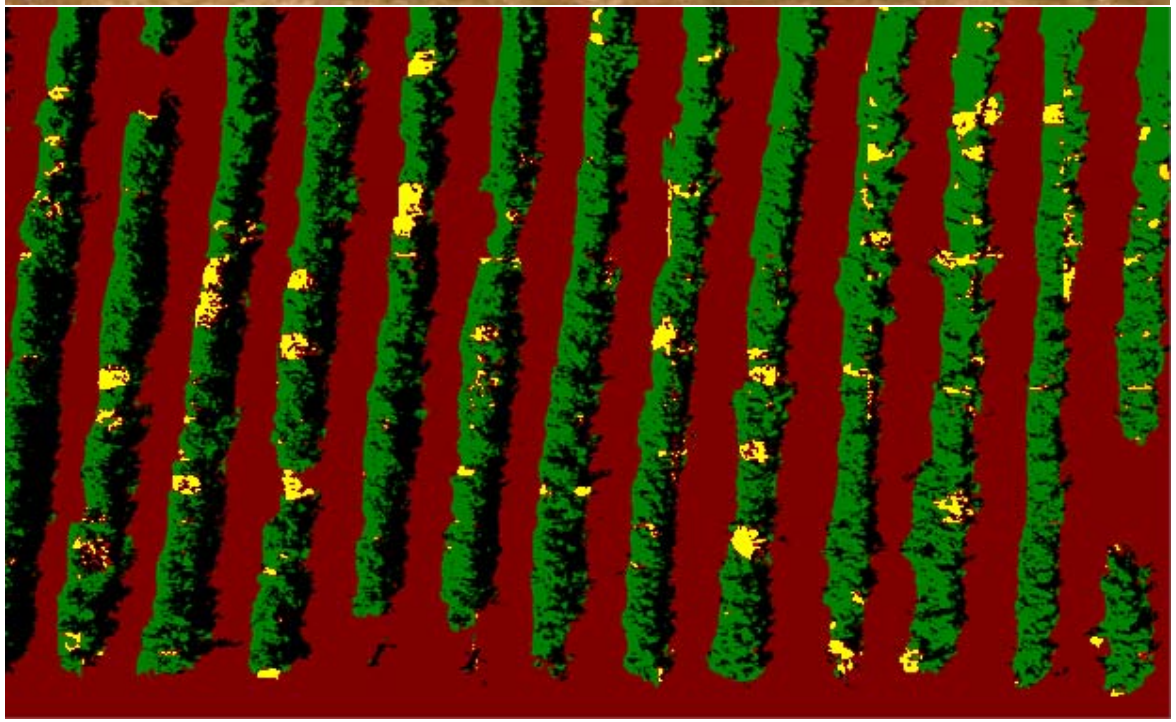
- Development and implementation of real-time IoT acquisition system, collecting data from three countries.
- 2 to 3 years of data collection with agronomic analysis.
- AI-driven downy mildew detection methods using IoT and imaging system.
- High accuracy detection rate in experimental data
- Federated learning as a new approach for disease detection
- Concept validation of privacy and data protection

Opportunities and next steps for innovation

- Long term data acquisition and agronomic analysis
- Implement AI in edge for local processing
- AI-driven aided decision system for end users
- Augmented reality and friendly user interface application
- Robotic approach for precise monitoring

Summary and Conclusion

- Showing the potential of the proposed approach to improve vineyard monitoring
- AI has important potential to improve precision agriculture
- Creating nice synergy between different project partners opening long term collaborations
- ~20 international paper, 1 patent
- 1 section organizer in conference, 2 workshop organizers with stakeholders



LET'S KEEP IN TOUCH!

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Thank you for your attention!