



Freshness REcording System for fish Quality Observation: THE FRESQO PROJECT

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FRESQO PROJECT

3 year project funded by the Operational Program
“FISHERIES 2014 – 2020”

Partners:

- “Athena” Research Centre
- ICS – FORTH
- HCMR
- Department of Aquaculture and Fisheries / TEI of Western Greece

Budget: 572.680 euros



BASIC PRINCIPLES

- Spectroscopy (or hyperspectral imaging): acquisition of light-matter interactions across a wide spectral range
- Benefits: accurate material identification and differentiation according to spectral profile, e.g. chemical alteration of tissues, oxygenation etc.
- Limitations:
 - Weights (tens of kilos), Cost (tens of thousands of euros), Usage limitations (moving platform requirements)
 - Need for analytical mathematical quantification of requested characteristics and relationships between features e.g. change in wavelength absorption as a function of specific concentration of chemical elements



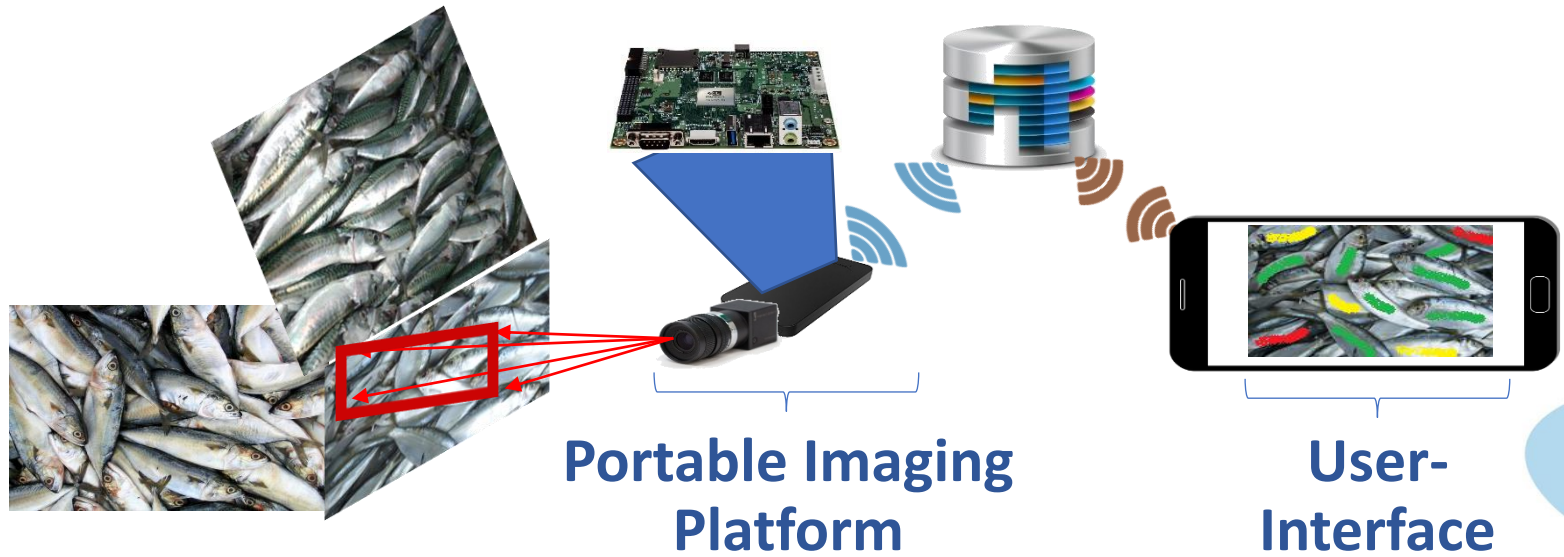
THE FRESQO APPROACH

- **Next-generation hyperspectral imaging cameras**
 - Low weight (< 1Kgr), Intuitive User-Interface (point-and-shoot), Acquisition speed (full resolution photographs vs points)
- **Introduction of innovative machine learning architectures**
 - System training on annotated examples. Generalization to new examples during testing (inference)
 - Automated extraction of critical spatial and spectral characteristics
 - Adaptability to new problems and setups.



System Architecture

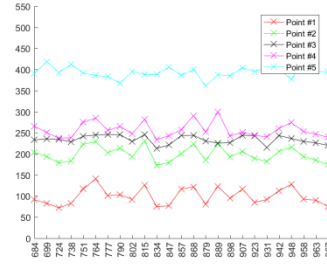
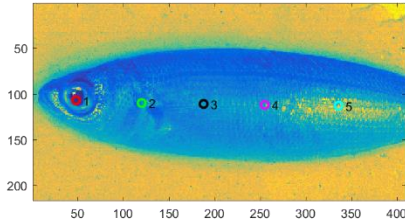
Computational Platform and Repository



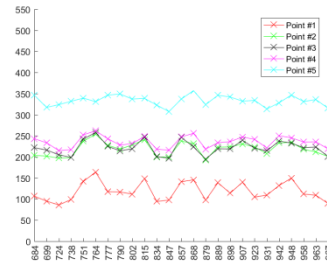
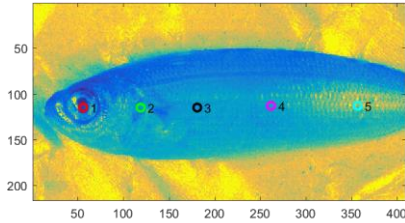
System operation

Machine Learning system

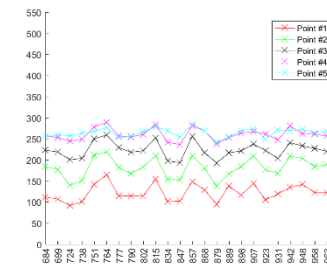
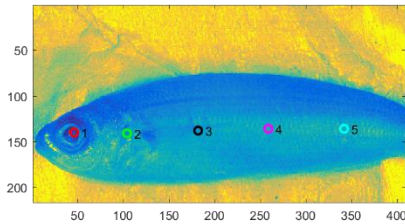
Day #1



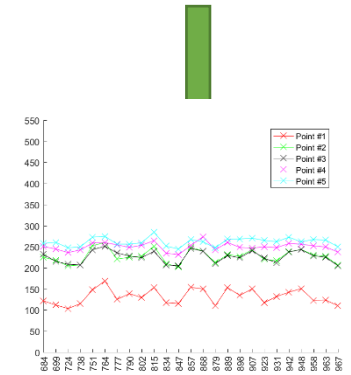
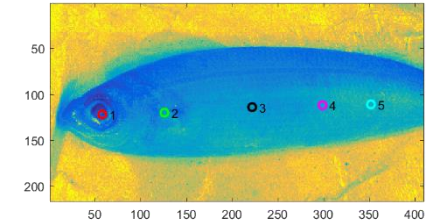
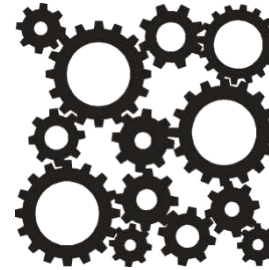
Day #2



Day #3



Training examples

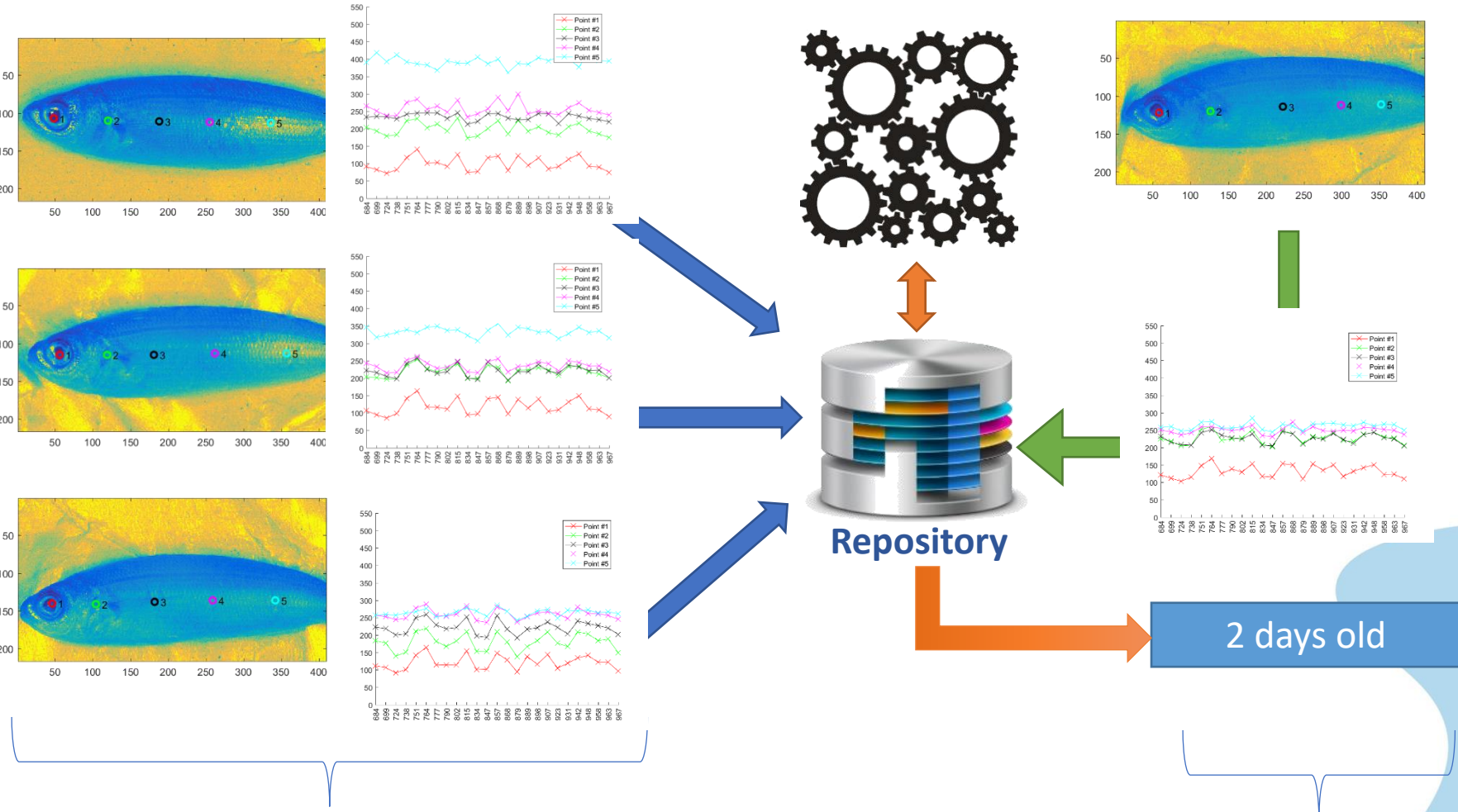


2 days old

Test sample



Repository





THANK YOU

