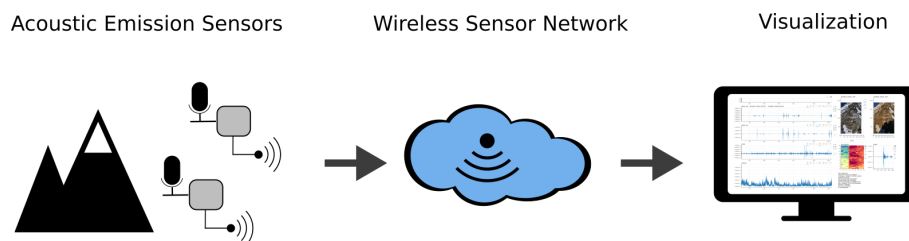


Semester Thesis:

Dynamic Data Visualization of Geophysical Processes

Motivation Wireless sensor networks (WSN) with acoustic sensors can be used for acoustic event detection in environmental monitoring. Currently a system is deployed in the Swiss Alps [1] which continuously collects multiple audio streams, weather information and images for analysis of geophysical phenomena. Understanding of the data is crucial to develop algorithms, however due to the huge amount of data it is important to compact the information into a human-graspable representation. A visualization tool must therefore

- integrate all sensor information
- provide multiple data representations on different scales to allow the understanding of long-term and short-term processes
- minimize the data transfer between the data server and the tool



Task For this thesis you will develop an interactive data visualization tool. A predefined framework for visualizations will be used to design dynamic plots and user interfaces. You will build upon prior work and apply different signal processing techniques to represent the data. These representations will be precomputed for multiple scales and dynamically loaded by the visualization tool.

Requirements You should have basic knowledge in

- Signal processing (FFT, Sampling, ...)
- Programming experience (Python)
- Optional: Knowledge in web development

Interested? Please have a look at <http://www.tec.ethz.ch/research.html> and contact us for more details!

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References

[1] Permasense Project, <http://www.permasense.ch/http://www.permasense.ch/>