

Appendix Supplementary Material

Ivan Nikolov Mark P. Philipsen Jinsong Liu Jacob V. Dueholm
Anders S. Johansen Kamal Nasrollahi Thomas B. Moeslund

Visual Analysis and Perception Lab

Aalborg University, Denmark

{iani, mpph, jili, jvdu, asjo, kn, tbm}@create.aau.dk

1 Metadata Correlation

The see all possible correlations between the captured weather data, the Pearson correlation matrix is calculated in Figure 1. The p-values for all correlations are close to 0, making them statistically significant. We additionally set a threshold of significant correlation above 50%. We can divide the weather data roughly in three categories - correlated to temperature - dew point (correlation of 0.85) and sun radiation intensity (correlation of 0.54), correlated to humidity - sun radiation intensity (correlation of -0.72) and minutes of sunshine every 10 min (correlation of -0.66) and not correlated to anything - precipitation, wind speed and wind direction. In addition, it should be mentioned that the sun radiation and minutes of sunshine are also strongly correlated, as both measurements are derivatives of the sun's intensity.

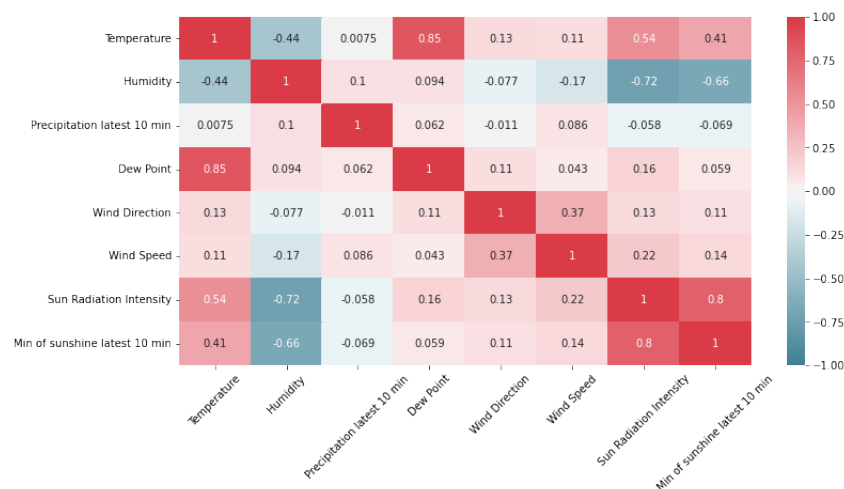


Figure 1: Raw weather data correlation matrix. Three categories are formed based on the correlations between the captured conditions - ones significantly correlation to temperature, ones significantly correlated to humidity and ones not significantly connected to anything.

2 Data Sampling

Example of a 100 frame sampling created for the training week between 13-20 of February can be seen in Figure 2 together with examples of the selected images. The blue points are all the images present in the week of February, while the red ones are the sampled images.

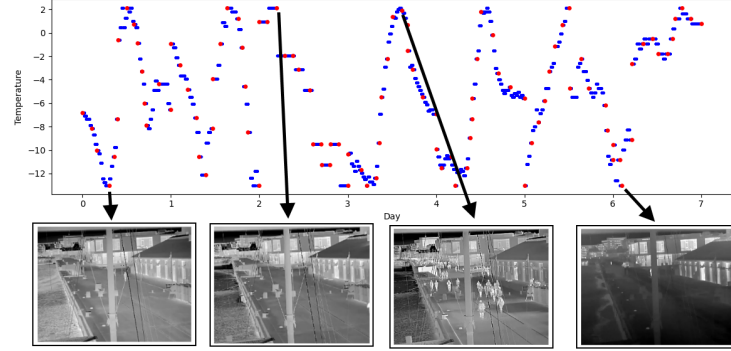


Figure 2: Sampling of the week between 13-20 of February. The sampling is done depending on the frame numbering and temperature. Some example images and their positions are given.

3 Activity Calculation

The difference between two consecutive frames in the dataset is set as the activity of the scene. When multiple people are moving in the scene or cars and bikes are passing through this will prompt a strong change between consecutive frames, signifying more activity. As the background contains moving parts, which can be misinterpreted as activity a mask is created, removing the waterfront water and the swaying ropes and masts. Examples of the calculation steps for a scene with large activity change and one with small are given in Figure 3a and Figure 3b, where the final numbers represent the activity.



Figure 3: Steps for calculating the scene activity level for a low activity Figure 3a and high activity Figure 3b examples. The middle images represent the masked moving elements of the background - the water, the mast and ropes.