

Preserved Relative Differences between Regions of Different Thermal Scans

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Abstract : Rheumatoid arthritis patients have swelling and pain at the joints of the hand. The regions where the patient feels pain also show increased body temperature. Thermal cameras can be used to detect the rise in temperature of the affected regions. To monitor the disease progression of rheumatoid arthritis patients, they must visit the clinic regularly for scanning and examination. After scanning and evaluation, the dosage of the medicine is regulated accordingly. To monitor the disease progression over time, the correlation between the images between different visits must be established. It has been observed that by using low-cost thermal cameras, the thermal measurements do not remain the same over time, even within a single scanning. In some situations, temperatures can vary as much as 2°C within the same scanning sequence. In this paper, it has been shown that although the absolute temperature varies over time, the relative difference between the different regions remains similar. Results have been computed over four scanning sequences and are presented.

Keywords : relative thermal difference, rheumatoid arthritis, thermal imaging, thermal sensors

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