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ABSTRACT



PRESENTATION



PAPER



Hrvoje Glavaš received his Ph.D. degree in electrical engineering from the Faculty of Electrical Engineering, Computer Science and Information Technology of the Josip Juraj Strossmayer University of Osijek (FERIT). His fields of interest are energy management, energy efficiency, public lighting, and thermography. His work experience includes energy audits, energy certification of buildings, thermographic audits, ISO 9001 internal audits, electric and magnetic field measurements. He is authorized by the two Croatian ministries for conducting energy audits. For ten years he has worked as technical manager of Electromagnetic Compatibility Laboratory in accordance with ISO 17 025. In 2019 he became an IEEE Senior Member. Currently, he is an associate professor at the FERIT's Chair for Power Plants and Energy Systems as well as a president of the Chair.

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APPLICATION OF FUZZY LOGIC IN ISOTHERMAL SURFACE BOUNDARY DETERMINATION

Determining the space of the isothermal surface in everyday use of the thermal imaging camera represents an intuitive process in which the aim is to immerse the IFOV as much as possible into the analyzed domain in order to achieve accurate readings. When using an accessible low-resolution camera, the challenge becomes greater because the image that the camera displays is of higher resolution than the sensor information and is often interpolated or superimposed on the visual image in order to achieve better detail detection. The aim of the work is to demonstrate the application of fuzzy logic in the determination of the isothermal surface

edge on the example of the active surface of a black body. Using a camera with a resolution of 320 ´ 240, NETD 45 mK, a black body with a temperature of 60 °C was recorded and a detailed analysis of its surface was carried out. Fuzzy logic is used to determine the edges in the image by assigning each pixel a degree of edge membership, instead of simply classifying pixels as edge or non-edge. This method allows for better management of ambiguities and noise in the image, resulting in smoother and more precise edges. Therefore, fuzzy logic represents an excellent method for determining edges in situations with low resolution, as shown in this example.