UNIVERSITÄT DES SAARLANDES

BACHELOR THESIS

Data Selection for Nonlinear Diffusion Inpainting in Image Compression

Author:
Daniel Gusenburger

Supervisor:
Prof. Joachim Weickert

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Department of Computer Science

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Declaration of Authorship

I, Daniel Gusenburger, declare that this thesis titled, "Data Selection for Nonlinear Diffusion Inpainting in Image Compression" and the work presented in it are my own. I confirm that:

- This work was done wholly or mainly while in candidature for a research degree at this University.

- Where any part of this thesis has previously been submitted for a degree or any other qualification at this University or any other institution, this has been clearly stated.

- Where I have consulted the published work of others, this is always clearly attributed.

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- I have acknowledged all main sources of help.

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Abstract

Faculty of Mathematics and Computer Science
Department of Computer Science

Bachelor of Science

Data Selection for Nonlinear Diffusion Inpainting in Image Compression

by Daniel Gusenburger

Image compression is becoming more and more relevant as the size and resolution of images is continuously increasing. Compression techniques such as JPEG/JPEG-2000 are doing a great job of reducing an image's size in memory drastically. However, for high compression rates, the quality of the image starts to deteriorate and so called artifacts become more and more prominent. Thus, a novel compression technique aiming to surpass JPEG-2000 in both compression rate and quality has been developed. This technique uses an inpainting algorithm based on nonlinear diffusion. It is given a mask from the original image and reconstructs the image from that mask.

The goal of my thesis is to examine the results of this algorithm using masks consisting of image features such as corners and junctions.

Acknowledgements

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dedicated to my cat

Chapter 1

Selection of interest points