Image processing II

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Summary
Study of advanced image processing; mathematical imaging. Development of image-processing software and prototyping in JAVA; application to real-world examples in industrial vision and biomedical imaging.

Content

• Deconvolution. Inverse and Wiener filtering. Matrix formulations. Iterative techniques (ART).

Learning Prerequisites

Required courses
Image Processing I

Recommended courses
Signals and Systems I & II, linear algebra, analysis

Important concepts to start the course
Basic image processing and related analytical tools (Fourier transform, z-tranform, etc.)
Learning Outcomes
By the end of the course, the student must be able to:
• Construct interpolation models and continuous-discrete representations
• Analyze image transforms
• Design image-reconstruction algorithms
• Formalize multiresolution representations using wavelets
• Design deconvolution algorithms
• Perform image analysis and feature extraction
• Design image-processing software (plugins)
• Synthesize steerable filters

Transversal skills
• Plan and carry out activities in a way which makes optimal use of available time and other resources.
• Manage priorities.
• Access and evaluate appropriate sources of information.
• Use both general and domain specific IT resources and tools