Technology
Arts Sciences
TH Köln

Course Manual BV3

Project Image Processing / Pattern Recognition

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General information

Long name	Project Image Processing / Pattern Recognition
Approving CModule	BV3_BaMT
Responsible	Prof. Dr. Dietmar Kunz Professor Fakultät IME im Ruhestand
Valid from	summer semester 2023
Level	Bachelor
Semester in the year	summer semester
Duration	Semester
Hours in self-study	162
ECTS	6
Professors	Prof. Dr. Dietmar Kunz Professor Fakultät IME im Ruhestand Prof. Dr. Lothar Thieling Professor Fakultät IME
Requirements	Module Image Processing Module Pattern Recognition
Language	English
Separate final exam	No

Literature

Burger/Burge: Digitale Bildverarbeitung

Gonzales/Woods: Digital Image Processing

− Lecture / Exercises

Learning goals

Goal type	Description
Knowledge	problem specific methods resulting from system model and literature search
Skills	skilled use of software development environment
Skills	skilled use of tools for image processing and image analysis
Skills	if required: skilled use of tools for training neural networks
Skills	understanding of scientific texts in English
Skills	presentation of project results in English
Skills	accomplish complex tasks in teams
Skills	present project results

Special requirements

none

Accompanying material	development environment for image processing and image analysis (ImageJ, IBV-Studio), electronic collection of sample programs and sample applications, electronic development environmentfor dreation and training of neural networks
Separate exam	Yes

Separate exam

Exam Type	EN Projektaufgabe im Team bearbeiten (z.B. im Praktikum)
Details	Presenation and documentation of project progress including oral project presentation at mile stone meetings. Final report.
Minimum standard	Project has to be processed with adequate effort and the achieved results must be visible from the presentations and documentation.

Skills	Derive complex problem solutions that can be implemented using image processing and image analysis analyse and understand complex problems derive system behaviour from specifying texts analyse systems model system from subsystems model, implement, and test subsystems map subsystems as far as possible on available components (image processing modules), i.e. selection of models and parameters implement and test required but not available image processing modules in C or Java using software development environment implement, test, and validate entire system (problem solution) Derive problem solution as chain of algorithms using image processing modules parametrize image processing modules test and validate solution iteratively improve algorithmic chain

Expenditure classroom teaching

Type	Attendance (h/Wk.)
Project	1
Tutorial (voluntary)	0