

Course

AKAT - Project Camera Technology Applications

Version: 2 | Last Change: 01.12.2019 22:13 | Draft: 0 | Status: vom verantwortlichen Dozent freigegeben

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General information

Long name	Project Camera Technology Applications
Approving CModule	AKAT BaMT
Responsible	Prof. Dr. Gregor Fischer Professor Fakultät IME
Level	Bachelor
Semester in the year	summer semester
Duration	Semester
Hours in self-study	72
ECTS	6
Professors	Prof. Dr. Gregor Fischer Professor Fakultät IME
Requirements	Attending the courses Image Sensor Technology, Camera Technology
Language	German and English
Separate final exam	Yes

Final exam

Details

written result report, presentation both in english language

Minimum standard

written and oral presentation of the project objectives, the project organisation and the project results

Exam Type

written result report, presentation both in english language

^ Project

Learning goals

Knowledge

multiple image methods
HDR (still picture and video)
image stacking (focus bracketing) -> 3D, depth of field extension
panorama stitching
3D-imaging

test procedures
OECF, SNR, MTF, color reproduction
investigation and comparison of quality

processing methods
raw data conversion
HDR-tonemapping
noise suppression and dynamic optimization

industrial imaging applications
surface inspection metallic/nonmetallic (bright field/dark field, polarization, raw image processing)
optical measurement (measurement of distribution of luminous intensity with a camera, BRDF measurement, ...)
thermography with IR-camera
surveillance cameras

Skills

designing and modelling of a procedure in a digital camera

balancing chances and risks for different problem-solving approaches

comprehend and understand scientific texts in English

presentation of project results in English

solve a problem by application of knowledges and skills from image sensor- and camera technology

determination of basic requirements on interface, hardware and software for a specific problem

inquiries on scientific publications in the field of image sensor- and camera technology
feasibility-check of common procedures to solve problems from the task definition
implementation of procedures in own programs
combination of procedures in own programs

- accomplish project task in a team
- plan and manage projects
- stick to agreements and deadlines
- achieve a solution in a team
- plan and execute reviews

Expenditure classroom teaching

Type	Attendance (h/Wk.)
Project	6
Tutorial (voluntary)	0

Separate exam

Exam Type

working on projects assignment with your team e.g. in a lab)

Details

6 attendance appointments of 4h each per project group, final presentation, project documentation in English

Minimum standard

written and oral presentation of the project objectives, project organisation and project results