

EE-551

Image communication

Frossard Pascal

Cursus	Sem.	Type
Electrical and Electronical Engineering	MA2, MA4	Opt.
SC master EPFL	MA2, MA4	Opt.

Language of teaching	English
Credits	4
Session	Summer
Semester	Spring
Exam	During the semester
Workload	120h
Weeks	14
Hours	4 weekly
Courses	2 weekly
Project	2 weekly
Number of positions	

Summary

This class presents the main concepts underlying image and video compression and transmission, and discusses current applications in multimedia communication.

Content**Recall**

Basics of rate-distortion theory, basics of quantization, basics of DPCM, basics of Fourier and wavelets transforms.

Image and video compression

Overview of image compression, multiresolution and wavelet coding, still image compression standards, motion estimation, overview of video coding, video compression standards.

Multimedia Networking

Basics of networking, multimedia networking protocols, multimedia traffic and network infrastructures.

Image Communication

Internet video and multiview video streaming, wireless video streaming, error resilient image communication, rate control, content distribution networks.

Learning Prerequisites**Recommended courses**

Introduction to signal processing, Image processing

Learning Outcomes

By the end of the course, the student must be able to:

- Analyze multimedia transmission systems
- Construct image compression and transmission methods
- multimedia transmission systems

Transversal skills

- Assess progress against the plan, and adapt the plan as appropriate.
- Use both general and domain specific IT resources and tools

- Access and evaluate appropriate sources of information.
- Write a scientific or technical report.
- Make an oral presentation.

Teaching methods

Ex cathedra with exercices in classroom and using computer

Assessment methods

Continuous control

Resources

Notes/Handbook

Image Communication, EPFL Master optional class, Prof. Pascal Frossard

Prerequisite for

Semester projects, master thesis projects and doctoral thesis