

Lecture

Foundations of Audio Signal Processing

MA-INF 2113

Winter Term 2025/26

§0 Organizational Issues

Prof. Dr. Frank Kurth



Recordings of the lecture

Permission to record the lecture or parts thereof is *not* granted!

- Historic remark: Lecture replaces the former
 - Foundations of Vision and Audio (MA-INF 2112)
- Credits can **only** be obtained for **one** of both lectures (i.e., MA-INF 2112 **xor** MA-INF 2113)
- Major focus of this lecture:
 - Introduction to Signal Processing
 - Processing of Audio Signals

(Which types of audio? See §1 !)

Lecture & Exercise Times and Locations

Lecture: Thursdays, **16:15 s.t. (i.e., sharp!)** – 17:45 h

- The lecture is **regularly held in presence** (MA 176, HS IV)
- In **exceptional cases only** (to be announced separately), the lecture will **be held in Zoom** under

<https://uni-bonn.zoom.us/j/92984663754?pwd=QVIPSk9oNktWT1FNQVJJM0hVR3c2Zz09>

Meeting-ID: 929 8466 3754, Password: 230420

Exercises: Thursdays **18:00** – 19:00 [**First exercises: 30.10.2025**]

- The exercises will be also held in presence (MA 176, HS IV)
- In **exceptional cases only** (to be announced separately), the exercises will **be held in Zoom** under

<https://uni-bonn.zoom.us/j/94424062258?pwd=SUhHWFB0a0k3MVJ4RkRISmE4S2JUUT09>

Meeting-ID: 944 2406 2258, Password: 159168

Sign up in eCampus for participating in the lecture and **exercises!**

Register for the lecture/exam in **BASIS as usual!**

- Enter the lecture in Zoom **a few minutes before the lecture starts**, allowing some time for setting up your own audio equipment (!)
- Everything should work fine as long as **we all keep up some discipline** 😊:
 - Video transmission from participants will be disabled by default
 - Audio transmission from participants will be muted by default
 - **You can unmute your audio manually – please only do so for questions!**
 - Lecture will stop from time to time to allow for questions (QA)
 - Lecture will be (partially) recorded – recording will stop during QA
 - Zoom gives a clear visual indication while the recording is going on, and it automatically plays an audio message when the recording is started or paused.
 - **Please do not speak/transmit audio while the recording is running. In doing so, you automatically consent to having your voice included in the recording!**

Exercises & Exercise Sheets

- Participation in the exercises strongly encouraged (1x / week).
- Each week, one exercise sheet has to be solved:
 - exercise sheets distributed by us each week (via eCampus),
 - solutions to be handed in via **eCampus** by **Friday 22:00** in the following week,
 - will be corrected, scored and returned via email.

Exercise sheets: Only solutions submitted (a) via eCampus und (b) by Friday the latest (see schedule on next page!) are accepted (no exceptions made!)

- You have to work in groups ($3 \leq N \leq 4$ students)
 - Each group hands in **one** „group solution“ of the exercise sheets (the names of all the members of the group must appear on the solution).
 - Note however: *Each group member has to be able to demonstrate all of the groups' solutions!*

– Solutions that are obviously copied from other groups will be rejected!

- Exercises coordinated and given by: Mrs. Alessia Cornaggia-Urrigshardt

You will find

- Weekly exercise sheets
- Notes on important dates (exams,...)
- Additional literature as necessary
- Submission site for all exercises (mind the deadlines!)
- Handouts of the slides shown in the lecture (note however, that additional material is provided during the lecture!)
- Log in using your Uni-ID as user name
- Registration will be open until November 7th, 2025

Schedule: Lectures & Exercise Sheets

	Week	40		41		42		43		44	
		Thu	Fri	Thu	Fri	Thu	Fri	Thu	Fri	Thu	Fri
	Oct.	02.	03.	09.	10.	16.	17.	23.	24.	30.	31.
Sheet	out					1		2		3	
	in						-		1		2
	scored							-		1	
	Week			45		46		47		48	
	Nov.			06.	07.	13.	14.	20.	21.	27.	28.
Sheet	out			4		5		6		7	
	in				3		4		5		6
	scored			2		3		4		5	
	Week			49		50		51		52	
	Dec.			04.	05.	11.	12.	18.	19.	25.	26.
Sheet	out			8		9		10			
	in				7		8		9		
	scored			6		7		8			
	Week	02		03		04		05		06	
	Jan. 25	08.	09.	15.	16.	22.	23.	29.	30.	Feb. 05.	06.
Sheet	out	11		12		P		-		-	
	in		10		11		12		P		-
	scored	9		10		11		12		P	

#Exercise sheets: 12

(P: Preparatory exercise sheet for exam.)

No lecture/exercise: ✗

20.12.24 - 04.01.26
(Christmas holidays),

Final exam:

10.02.2026, 13-15 h
Location: HSZ, HS 1

Resit exam:

19.03.2026, 12-14 h
Location: HSZ, HS 1

Obtaining the 6 credit points (CPs)...

Final exam:

10.02.2026, 13:00 – 15:00, location: HS 1, HSZ (90 minutes of writing time)

Exam currently being scheduled **in presence** (= physically at U Bonn)

Criterion to be admitted to final exam:

Obtaining $\geq 50\%$ of all possible points/scores in the 12 exercise sheets.

- It is beneficial to actively participate in the exercises!
- If you fail the final exam, a **resit exam** will be offered on

19.03.2026, 12:00 – 14:00 location: HS 1, HSZ (90 minutes of writing time)

Exam currently being scheduled **in presence** (= physically at U Bonn)

Lecturer: apl. Prof. Dr. Frank Kurth



Lecturer for Computer Science at CS dept. of U Bonn

Fields of interest:

- Audio Signal Processing
- Multimedia Information Retrieval
- Efficient Algorithms
- Digital Audio and Music Libraries

Member of AG Multimedia Signal Processing (Prof. Clausen)
1997-2006

Current position: Scientist at Fraunhofer FKIE

Contact:

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Staff for this lecture

- Exercises:
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- Planned: (Summer term 2026)

Pattern Recognition and Machine Learning for Audio Signal Processing

- by Prof. Dr. Frank Kurth
- Builds upon the foundations laid in this lecture.
- Contents:
 - Foundations of Pattern Recognition
 - Machine Learning Techniques (e.g. Deep Neural Networks)
 - Audio Signal Processing Applications

And now...

... lets go for the introduction!