Question 1

Not yet answered

Marked out of 5.00

⚑ Flag question

In the assignments, we have been working with audio data in PCM format. Read the statements about PCM and mark true statements.

- ☑ a. In PCM, the amplitude of the signal is represented by discrete values.
- ☐ b. In PCM, the signal content is represented in frequency bins.
- ☐ c. In PCM, the signal is represented as a mixture of sinusoidals.
- ☐ d. PCM stands for Power Code Multiplexing.
- ☑ e. PCM stands for Pulse Code Modulation.
- ☐ f. In PCM, the signal is sampled at discrete points in time.

Question 2

Not yet answered

Marked out of 5.00

⚑ Flag question

What is the onset of a musical note event?

- ○ a. The end of the note event when no more sound can be heard.
- ○ b. The resonant phase of the musical event.
- ◉ c. The very beginning of the musical note before any sound is heard.
- ○ d. Do not know

Clear my choice

Question 3

Not yet answered

Marked out of 15.00

⚑ Flag question

In the context of beat tracking, for a basic algorithm one needs to find the exact beat locations (beat phase) after periodicity estimation.

Name **three different methods** for this task given a tempo/periodicity estimate and describe. You can assume that an onset detection function or detected onsets are provided.

Name **advantage** and **weakness** if applicable.

⤶ | A▾ | B | I | ☰ | ☷ | % | ⌗ | ! | 🖼 | ☺

Question 4

Not yet answered

Marked out of 5.00

⚑ Flag question

We divided the note events into three different categories: **percussive, harmonic, and percussive-harmonic events**.

Assign the correct properties to the three different types.

Percussive-harmonic event | ✓ Choose...

Percussive note event | Strong, short impulse over a wide band of frequencies, then multiple frequencies resonate for some time.

Harmonic note event | High energy broadband noise sounds for some time and slowly changes into multiple frequencies resonating.
Multiple frequencies start simultaneously and resonate for some time.
Strong, short impulse over a wide band of frequencies, little to no resonance.
Short harmonic sound, then broadband noise sounds continuously for some time.

Question 5

Not yet answered

Marked out of 5.00

⚑ Flag question

Describe the **necessary steps for the segment and classify** drum transcription approach discussed in the lecture.

1. Segment | ✓ Choose...

2. Classify | Use beat tracking to segment the signal
Use onset detection to identify events
Assign instrument labels to each segment
Classify the whole signal

Question 6

Not yet answered

Marked out of 15.00

⚑ Flag question

Describe in your own words how, in principle, **Convolutional Neural Networks** (CNNs) can be used for the multiple fundamental frequency (f0) estimation task.

Assume a scenario focused on solo piano performances.

What are *1)* **input / *2)* output** for the neural network? How does *3)* a **CNN process the input features**? What is needed to *4)* **train** the networks? What are *5)* **pre-** and *6)* **post-processing** steps?

⤶ | A▾ | B | I | ☰ | ☷ | % | ⌗ | ! | 🖼 | ☺

Describe the **TagATune Game With A Purpose** to collect semantic annotations of audio snippets. Describe the general idea, the setup and how it differs from similar games for image annotation, i.e. the ESP game. Give an indication why semantic annotation in the audio domain appears to be more challenging than in the image domain. Which implications stem from this wrt. semantic annotation?

⤓	A ▾	B	I	≣	≣	%	✂	!	🖼	☺

Consider the following comparison of ground truth (targets) and detections of a drum transcription algorithm.
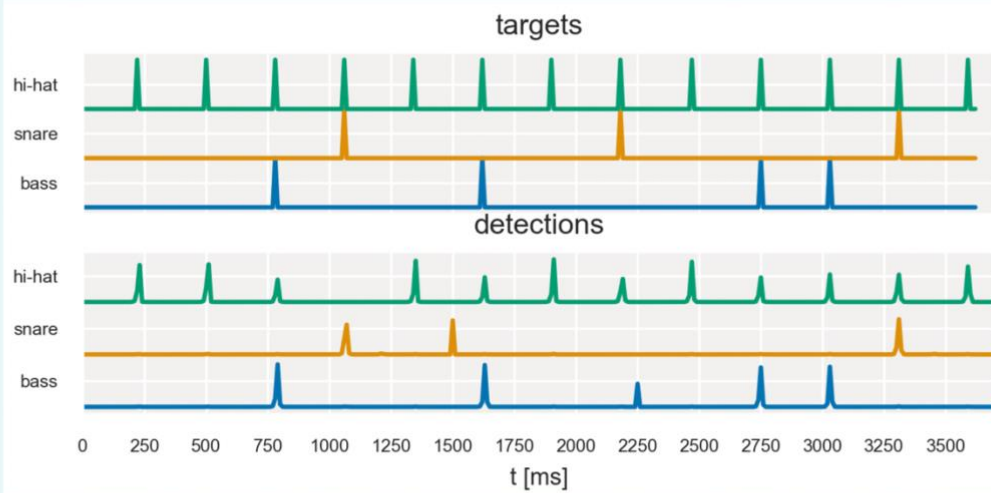
- Define a perceptually motivated tolerance window (in ms) and motivate your choice.
- Count *true positives*, *false positives*, and *false negatives*.
- Calculate Precision, Recall, and F1 score over all three instruments (use micro evaluation, i.e. calculate metrics once for total counts).
- Why are *true negatives* ignored?

⤓	A ▾	B	I	≣	≣	%	✂	!	🖼	☺