

# Team #16: From Strings to Sequences — Classifying and Generating Music from Acoustic Guitar Notes

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## 1. Task and Motivation

Task statement and definitions

Motivation: Why do we need to explore this task?

Related work: How do existing papers solve this task or similar tasks (should include relevant citations)?

Challenge: What are the major challenges that have not been solved in this task?

[6] [4]

## 2. Goals

What challenges do you aim to address in this task?

What do you want to have completed by the mid-term?  
E.g., code for the task, data collection, results for baselines, etc.

## 3. Methods

What models/frameworks do you use to solve the challenges?

Why can the proposed method / analysis solve your problem?

What are the main differences between your method and existing methods (if applicable)?

What is the required computational budget for the training/analysis? (E.g. are you planning on using pretrained backbones?)

## 4. Datasets

What datasets are you going to use/collect and why?

### 4.1. Fretboard Detection

This one has both: [5]. Only fretboard: [7], [3].

### 4.2. Chord Recognition

For chord recognition: [8], [1], [2].

### 4.3. Seamless Audio Generation

*GuitarSet*, a dataset that provides high quality acoustic guitar recordings alongside time-aligned annotations including fret positions, chords, among others [9].

## 5. Evaluation

How is your method going to be evaluated?

What metrics are suitable?

Do you need to define your own metric for evaluation?

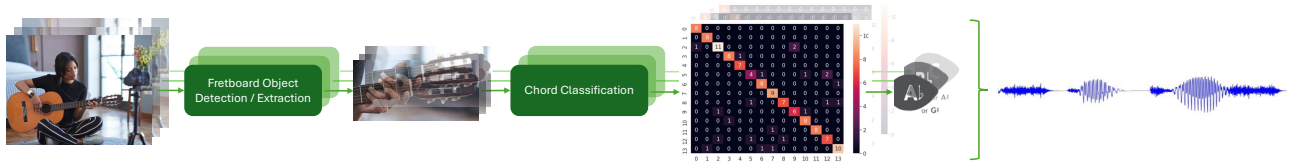


Figure 1. Overview of the Model, showcasing the 2 most important tasks: Fretboard Detection and Chord Classification, done for each frame of an input video. Image taken from *Getty Stock Images*, confusion matrix image taken from [6].

## References

- [1] GRC MASK custom dataset. Guitar chord bounding box dataset. <https://universe.roboflow.com/grc-mask-custom-dataset/guitar-chord-bounding-box>, jun 2024. visited on 2024-06-29. [1](#)
- [2] GRC MASK custom dataset. Guitar chord handshape dataset. <https://universe.roboflow.com/grc-mask-custom-dataset/guitar-chord-handshape>, apr 2024. visited on 2024-06-29. [1](#)
- [3] done. done dataset. <https://universe.roboflow.com/done-ygt9y/done-npc11>, apr 2024. visited on 2024-06-29. [1](#)
- [4] Yuexi Du, Ziyang Chen, Justin Salamon, Bryan Russell, and Andrew Owens. Conditional generation of audio from video via foley analogies. In *Conference on Computer Vision and Pattern Recognition 2023*, 2023. [1](#)
- [5] joamarcoscrcs. Guitar chords dataset. <https://universe.roboflow.com/joamarcoscrcs/guitar-chords-daewp>, jun 2024. visited on 2024-06-29. [1](#)
- [6] Yosi Kristian, Lukman Zaman, Michael Tenoyo, and Andreas Jodhinata. Advancing guitar chord recognition: A visual method based on deep convolutional neural networks and deep transfer learning. *ECTI Transactions on Computer and Information Technology (ECTI-CIT)*, 18(2):235–249, May 2024. [1](#), [2](#)
- [7] SOEN357. guitar dataset. <https://universe.roboflow.com/soen357/guitar-ppfil>, may 2024. visited on 2024-06-29. [1](#)
- [8] My Work. Guitar chord dataset. <https://universe.roboflow.com/my-work-3idwy/guitar-chord-tvon8>, may 2024. visited on 2024-06-29. [1](#)
- [9] Q. Xi, R. Bittner, J. Pauwels, X. Ye, and J. P. Bello. Guitaret: A dataset for guitar transcription. In *19th International Society for Music Information Retrieval Conference (ISMIR)*, Paris, France, September 2018. [1](#)