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Background/Motivation

- As a **casual** piano player, I like to find sheet music from the internet
- It is **annoying** to turn a page of the score **manually** every single time as the flow of the motion of my hands is **interrupted**, especially for some scores with poor typesetting

Objective:

- To create a software that recognizes when to turn a page of a musical score

Existing Solution

- Enote: Most comprehensive software with automated page turning **coming soon**, but **can't import scores** + **expensive subscription** (Aimed for **professional** musicians, not **casual** users)
 - GitHub open source projects e.g. Orchestra by AbdallahHemdan -> only converts images of score to machine readable format, **can't turn a page**
 - Page turner pedals -> **expensive** <https://newzik.com/en/blog/best-page-turners/>
 - Eye-gaze page turning/ other methods researched/ in research -> **each has their own problem** (<https://www.frontiersin.org/articles/10.3389/frai.2020.00057/full>)
- ==> **Currently** no **easily available software** can turn a page accurately

Your Solution

- Input: Midi, images of each row of the sheet, (note harmonics of the instrument?), (initial tempo range?)
- Recognize the notes played using python modules Librosa, NumPy, Pandas etc.
- Estimate the tempo & current position in score -> estimate the probability of being in which bar
- When flip the page, keep the last bar -> accommodate for inaccuracies

Resources Needed & Questions

- **Training data**
 - Noise from surroundings?
 - Midi of sheet from where? Convert to midi from image will be too complicated (at least for this project), but other existing software e.g. musescore3, scan-score3 not accurate, try sibelius?
- **Note harmonics --> need recognize every single notes? And need calibrate to each instrument?**
- **When turn a page, only change top row of the page? -> need more slices of images, but can accommodate larger errors in page flipping**
- **Computationally expensive, hard flip in real time?**
- **Need the initial tempo range?**