Sep 20, 2022

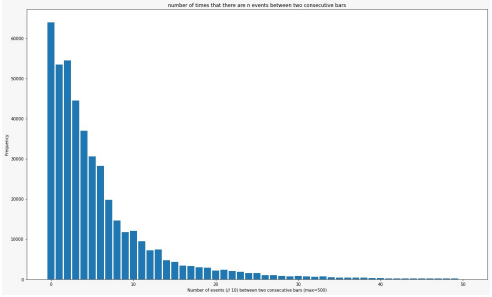
Agenda:

- What did my team work on this past week?
- Where are we currently on our planned schedule?
- What are we working on now?
- What are the challenges we are facing?

	Completed activities	Issues	To-dos
Team		- based on word cloud distribution, do we need to balance data by genre?	

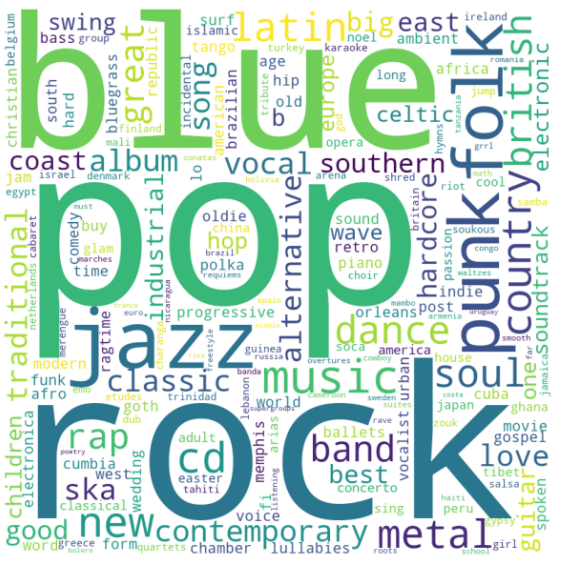
Zhouyao	- implemented MusicCLIP class init function & forward method, integrated music encoder methods into the class: https://github.com/ZhouyaoXie/Intelligent-Multimedia-Art-Generation/blob/model/model/model.py
	- work in progress: implement contrastive loss
		- which version of contrastive loss to implement & dataloader might need to output paired data	- finish MusicCLIP class
			  - implement load_model_weights
			  - test forward function
			- finish contrastive loss

Nikhil			- methods in musicCLIP class: initialize BERT & encode_text methods
Xinyi	- eda on bar_pos, remi events, and attribute scores	- found that we need to change the attribute class bounds to fit to	- change dataloader to generate (feature data, pos label, neg label)

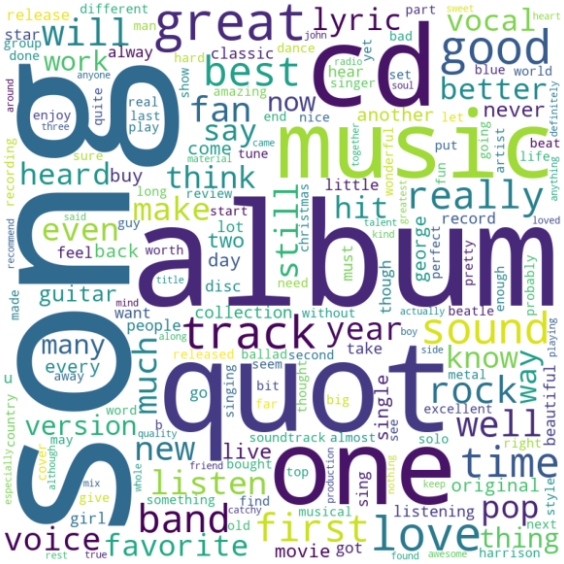
	(see https://github.com/ZhouyaoXie/Intelligent-Multimedia-Art-Generation/blob/music_repr/README.md)
	 
	- updated dataset with new attribute scores
	- current dataset: remi_dataset_0919_updated.tar.gz, full data 34241, with modified attribute scores fitted on the augmented dataset distribution
		our dataset (based on the augmented data)
		
		- Since the current attribute score class is not quite balanced (too many 0.0s for both scores and 1.0s for rhym_intensity), might need to experiment and see if we need to change the configuration (during calculation if note_duration //tick_resol is mostly 0, then there will be lots of 0.0s for rhym_intensity scores)
		`# ================================`
		`#  Configuration`
		`# ================================`
		`BEAT_RESOL = 480`
		`BAR_RESOL = BEAT_RESOL * 4`
		`TICK_RESOL = BEAT_RESOL // 4`
			pairs instead
			- check if we can drop those with very few bars that have events (the proportion) .. and generate a new data version

Jingxi	- make a wget link for dataset files pip install gdown - word cloud of genre, visuliaze genre distribution	- pop and rock has small frequency compared to other words in the entire label set. Do we still need to handle these? - 18 of all positive labels are nan	- drop pos tuple with nan genre & drop its corresponding neg tuple. - Re-generate neg to have only valid genre

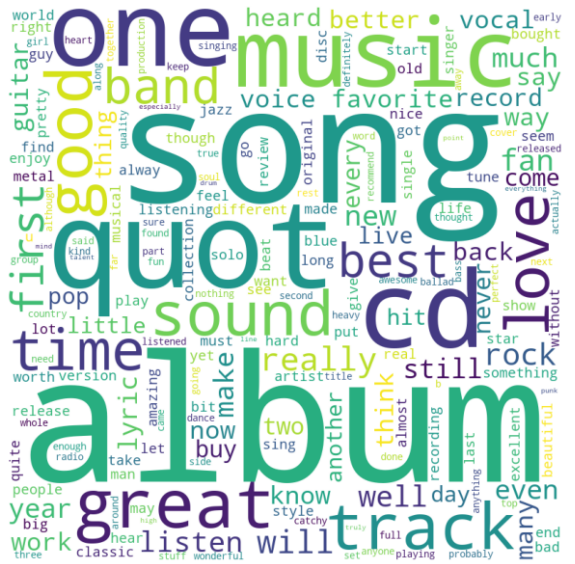
all positive genre labels



estimate of all negative genre labels



all positive review + genre label



all negative review + genre label

Sep 13, 2022

Agenda:

- What did my team work on this past week?
- Where are we currently on our planned schedule?
- What are we working on now?
- What are the challenges we are facing?

	Completed activities	Issues	To-dos
Team		- pls check whatsapp regularly (at least on a daily basis) - if u encounter any issues that will block ur progress, discuss in team whatsapp right away & the team could help, don't wait till our weekly meeting!	- meeting with Prof. Nyberg tmr 11am in class - in-person team meeting 3pm next Tue
Zhouyao	- tested forward method of music encoder on aws p2.xlarge - added music decoder & tested generate()	- python import from sibling directory -> resolved using a hack but might need to look into further in the future - out of memory when running forward, will try larger memory after receiving aws credits	- integrate music encoder with text encoder & test on p2 instance - implement contrastive loss
Nikhil	- Implement Text encoder - Cross attention layers - Testing runtime errors	Pytorch versioning issus to run all the clip, bert and lxmert. Would have to implement changes on teh fly if the musemorphose's	- Setting up the training script. - Setting up the wandDB server

		layers don’t work in tandem with the existing code. This will be verified as we setup the training script next week.	
Xinyi	- generated data features (remi events, bar_pos, attribute scores) - finished dataloader part, fitting our dataset, already tested on current review pairs (but not yet on genre pairs)		- test and modify the dataloader on new changes (genres included, data splitted) - publish code to github - (sampling function based on weights in dataloader? Based on weights return True/False if True, use it in this epoch, …) - Statistics/distribution on the music (length, chord, avg # of events within a bar/chunk, …)

Jingxi	- generate positive dataset in (file_name, text) format for all reviews & genre
	- implement method to sample negative genres
	- generate negative examples
	- https://drive.google.com/drive/folders/13UbMp_Q0PvnPsVNs7Aw4RWeiwT5cRatl?usp=sharing
		Genre: average of 7-10 words of genre for each song,
		`Vocal Jazz,Jazz,Traditional Vocal Pop,Pop,Modern Postbebop,Broadway & Vocalists,Vocal Pop,Bebop`
		`Vocal Jazz,Jazz,Traditional Vocal Pop,Pop,Modern Postbebop,Broadway & Vocalists,Vocal Pop,Bebop`
		`Vocal Jazz,Jazz,Traditional Vocal Pop,Pop,Modern Postbebop,Broadway & Vocalists,Vocal Pop,Bebop`
		`Vocal Jazz,Jazz,Traditional Vocal Pop,Pop,Modern Postbebop,Broadway & Vocalists,Vocal Pop,Bebop`
		`Vocal Jazz,Jazz,Traditional Vocal Pop,Pop,Modern Postbebop,Broadway & Vocalists,Vocal Pop,Bebop`
		`Oldies,Pop,Rock`
		`Oldies,Pop,Rock`
		`Pop Rap,Jazz,Vocal Jazz,Pop,Easy Listening,Rap & Hip-Hop,Rock,Vocal Pop`
		`Pop Rap,Jazz,Vocal Jazz,Pop,Easy Listening,Rap & Hip-Hop,Rock,Vocal Pop`
		`Pop Rap,Jazz,Vocal Jazz,Pop,Easy Listening,Rap & Hip-Hop,Rock,Vocal Pop`
		443 unique genres. Some are highly repetitive, i.e. “pop” and “teen pop”
		Review: some very very unrelated reviews
			- make a wget link for dataset files
			pip install gdown
			gdown https://drive.google.com/uc?id=<file_id>
			gdown --folder https://drive.google.com/drive/folders/<file_id>
			- update readme
			- upload file and data to github
			- process genres to balance label
			- word cloud of genre, visuliaze genre distribution

Earth and Sky Dancing Music, intelligent on so many levels. Co-writers Costa/ St.John Ramirez deliver a blend of Indigenous Soul Music with R&B and Afro Latin Rhythms that is smooth, fun & deep. And with Justo Alma
I bought this based on the snippets that they give you here on Amazon. The actual C.D. is much better than even the previews give you. It gives you energy, makes you want to get up and dance and twirl around with
I really love Jai's voice, it's soothing and transcendent. A great album for anyone who loves kirtan.Very informative too.
This is ok but it's not very relaxing... I would classify this music as a bollywood soundtrack.
I am biased, extremely so. I went to a retreat with Jai Uttal, and I had one of the most wonderful times of my life. When I left, I went into severe Kirtan withdrawals; so I went to my local bookstore and bought
Jai has a great voice. I'm turning all of my friends on to this music. The pet bird was even dancing to it. Very inspirational. I love both cd's.
Wonderful kirtan, by a great artist.
This is nice to listen to but I was wanting a CD of call and response chanting for the purpose of chanting with friends.
Jai is wonderful. Ganesha Shanaram plays in my head all day and I feel happy. Even my granddaughter dances with me when it plays. Very cool.
Purchased this CD based on a piece about the artist on NPR. Great music selections for yoga practice and massage.

Sep 6, 2022

Agenda:

- Follow up from last meeting
- Review recent activities
- Discuss/document issues that will affect your plan dates
- Review upcoming activities
- Discuss any new/continuing issues, assign action items as necessary

	Completed activities	Issues	To-dos
Team	- team meeting next Tue. 3pm		
Zhouyao	- implemented music encoder class init & forward methods - tested initializing music encoder & loading pretrained weight on AWS p2.xlarge - wrote bash script to set up musemorphose env. and run test script	- need Dataset & DataLoader class	- test music encoder forward method using REMI 1.7k data - write unit test for DataLoader - implement the music generate method
Nikhil	- Studied stable diffusion - Training process finalzied - shared and frozen layers protocol	-OOP for cross modal attnetion can be implemented carefully in a way that the code can be also used for stable diffusion if needed.	- Implement the cross attention for 2 modalities - With pluggable frozen layers to deal with other modality.
Xinyi	- finished reorganize code for feature generation; - received id list from Jing Xi and generated basic REMI files (not	- Several files unable to process (dropping the files for now)	- Continue working on chunking data into 16 bars - Finish data and send back to Jing Xi for further label matching

	chunked)		- implement Dataset and DataLoader class - test Dataset and DataLoader class on test scripts
Jingxi	- Generated list of recording IDs for Xinyi - add comment to pre-processing code		- generate positive dataset in (music, text) format for all reviews & genre - implement method to sample negative genres - generate negative examples

- (music1_recording1_chunk1, review1)
- (music1_recording1_chunk2, review1)
- (music1_recording2_chunk1, review1)
- (music1_recording3_chunk1, review1)
- (music1_recording1_chunk1, review2)
- (music1_recording1_chunk2, review2)
- (music1_recording2_chunk1, review2)
- (music1_recording3_chunk1, review2)
-
- (music1, genre list (e.g. “emo rock, alternative rock”)) -> review0
- Create negative samples: replace every genre with one that’s not associated with the music

Sep 3, 2022

Agenda:

- Follow up from last meeting
- Review recent activities
- Discuss/document issues that will affect your plan dates
- Review upcoming activities
- Discuss any new/continuing issues, assign action items as necessary

	Completed activities	Issues	To-dos
Team	- team meeting Tue 3pm; ~3:40pm next Tue on zoom	- proposal: Tue afternoon/evening for team meeting & record standup - implementation details about dataset: 1) train/val/test split; 2) split by songs; 3) data format; - project name	
Zhouyao			- follow up on email to prof. - implement music encoder class skeleton - implement music encoder init() & initialize_weight methods - test initialize music encoder on AWS P instance

Nikhil			- High level OOP architecture for Cross attention implementation - Finalizing the training process with few shared layers (and other unshared) layers across tasks - Literature review on stable diffusion as an alternative to transformer based attention
Xinyi			Reorganize code for feature generation; Start implementing code for chunking music pieces into 16-bar segments
Jingxi			Generate list of recording IDs needed for Xinyi

Aug 31, 2022

Agenda:

- Follow up from last meeting
- Review recent activities
- Discuss/document issues that will affect your plan dates
- Review upcoming activities
- Discuss any new/continuing issues, assign action items as necessary

	Completed activities	Issues	To-dos
Team		Q: overlappings in the standup and weekly meetings	- fall plan slides & presentation
Zhouyao			- fall plan Intro & hypothesis slides - Ask Prof. Nyberg about weekly meeting at 11am every Wednesday
Nikhil			- fall plan Model/Algorithm
Xinyi			- fall plan Experimental evaluation & data
Jingxi			- fall plan Fall development goals & design

Fall Plan

Week No. (DDL)	Task	Task No.	Sub-task	Dependencies	Assigned to
9/4	Fall plan	V0	Submit fall plan and presentation, set up weekly meeting documents and schule		Entire team
9/7	Dataset preparation	A1	Generate list of recording IDs needed		Cecilia
9/14	Dataset preparation	A2	Generate feature data with new recordings (REMI Events)	A1	Silvia
9/14	Dataset preparation	A3	Music data augmentation by chunking up each piece of music into 16-bar segments	A2	Silvia
9/14	Dataset preparation	A4	Analyze sample text label (potential Text preprocessing for labels)		Cecilia
9/21	Dataset preparation	A5	Match chunked music segments with text for new positive and negative tuples	A3	Cecilia
9/7	Model building	B1	Implement music encoder using MuseMorphose		Zhouyao
9/7	Model building	B2	Implement BERT text encoder		Nikhil
9/21	Model building	B3	Implement cross-attention	B1, B2	Nikhil
9/21	Model building	B4	Implement contrastive loss	B1, B2, B3	Zhouyao
10/10	Model building	B5	Implement metrics (e.g. log likelihood, coherence scores, etc.) for model evaluation		Silvia
9/23	Model building	B6	Develop model training pipeline	B1, B2, B3, B4	Zhouyao, Nikhil
10/6	Model building	B7	Develop model inference pipeline (the generative module)	B1, B2, B3, B4	Zhouyao, Nikhil
10/10	Baseline result	C1	Model training	A, B1, B2, B3, B4	Entire Team

10/17	Baseline result	C2	Model evaluation	A, C1, B5	Silvia
10/24	Midterm Check-up	V1	Check-up meeting with Prof. Nyberg		Entire Team
10/31	Experimentation	D1	Error analysis	A, B	Entire Team
11/16	Experimentation	D2	Hyperparameter tuning	A, B	Entire Team
12/7	Experimentation	D3	Other model improvement ideas (e.g. data augmentation, different event definition, etc.)	A, B	Entire Team
11/20	Final	V2	Draft Report		Entire Team
12/7 - 12/14	Final	V3	Final Presentation		Entire Team
12/15	Final	V4	Final Report		Entire Team