Freesound Datasets:

A platform for the creation of open audio datasets

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Introduction

- Datasets are key factor in sound and music computing. However:
 - lack of **transparency** in their creation
 - not completely **open/shareable**
 - unclear mechanisms for **error ammendment**
 - **not large enough** for current machine learning needs
- Freesound Datasets: online platform for the collaborative creation of open audio datasets

Our vision

- Transparency: workflow in creation process & content exploration
- **Openness**: free distribution & reuse
- **Dynamism**: criticism & proposals in the platform
- **Sustainability**: community as continuous source of information
- How?

freesound

The Freesound Datasets platform - https://datasets.freesound.org/

We plan to host several datasets supporting:

Annotation:

- ground truth generation
- volunteering-based crowdsourcing
- guidelines & training phase
- quality control

• Dataset exploration:

- browsing sounds by categories
- interactive visualizations

Discussion:

- platform: improvements & functionalities
- datasets: content, collection process, taxonomy

• Dataset releases:

- time-evolving (quality & quantity) - dataset versioning

D Explore	Annotate Discussion Download	edufonseca 🗳 Logout 💣 Home	Is Wind instrument,	, woodwind instrum	nent present in	the	Help ?	Try other sounds
		Hierarchy \$ > Music > Musical instrument > Didgeridoo	following sounds	5?				
Wind instrument, woodwind instrument		The sound of an Indigenous Australian wind Description instrument, usually cylindrical or conical, measuring anywhere from 1 to 3 m long.	#1		#2	⊡ ™	#3	C
Hierarchy	> Music > Musical instrument > Wind instrument, woodwind instru	ment Examples		 Present and predominant 		 Present and predominant 		 Present and predominant
	Singing bowl Keyboard (musical) Musical ensemble Bowed string		► C	 Present but not 	► C +++ -00:54	 Present but not 	C	 Present but not
Siblings	Harp Choir Bagpipes Brass instrument Bass (instrument role)	Bell		predominant		predominant		predominant
	Plucked string instrument Percussion Accordion Orchestra T	eremin Harmonica		 Not Present Unsure 		 Not Present Unsure 		 Not Present Unsure
Direct children	Flute Saxophone Bassoon Clarinet Oboe							
Description	Sounds of a family of musical instruments in which a column o the player blowing into a mouthpiece set at the end of the reso		#4	C	#5	C*	#6	[
				 Present and predominant 		 Present and predominant 		 Present and predominant
amples				 Present but 		 Present but 		 Present but
ampies			-00:13	not	-00:07	not	► C -++00:24	not
				predominant		predominant		predominant
				O Not Present		O Not Present		O Not Present
Before annotatin	ng, please take some time to acclimatise yourself with your category Wind instrum	ent, woodwind instrument and its related categories:		 Unsure 		O Unsure		 Unsure
	Training phase before	annotation	#7	C [™]	#8	C ^r	#9	[.
				 Present and 		O Present and		O Present and
10.1				predominant		predominant		predominant
undData	aset Theremin		C 00:14	 Present but not 	-00:17	 Present but not 	► C01:00	O Present but not
	Ausic > Musical instrument > Theremin			predominant		predominant		predominant
on	The sound of an early electronic musical instrument controlled without antennas that sense the relative position of the player's hands and cont	• •	Ann	otation	page fo	r <mark>our va</mark>	lidation	task

Download:

- waveforms, features, ground truth, metadata
- Creative Commons licenses

Examples	-00:09 -00:08	Code ① Issues 23 ① Pull requests ① Projects ① Wiki Insights Settings						
# sounds samples	137	Filters -Q is:issue is:openLabelsMilestones	New issue					
# ground truth annotations	0	□ ① 23 Open ✓ 23 Closed Author - Labels - Projects - Milestones - Assignee - Sor						
# verified annotations 0 Sounds with this label		How suitable is AudioSet Ontology for Freesound content? discussion FSD1.0 #84 opened a day ago by edufonseca						
		Add access to admin page for editing TaxonomyNode fields #79 opened 6 days ago by xavierfav						
Sound	Freesound URL	 Designing Explicit part of Training phase #71 opened 20 days ago by edufonseca 	Ģ 1					
► C	http://freesound.org/s/28483	Change dataset stats displayed #56 opened on Jul 14 by xavierfav	4					
► C00:00		About page very slow to load #53 opened on Jul 13 by xavierfav	Ç 2					
► c -00:04	http://freesound.org/s/1767	Annotation tasks brainstorming for FSD discussion FSD1.0 #35 opened on May 19 by edufonseca	7					

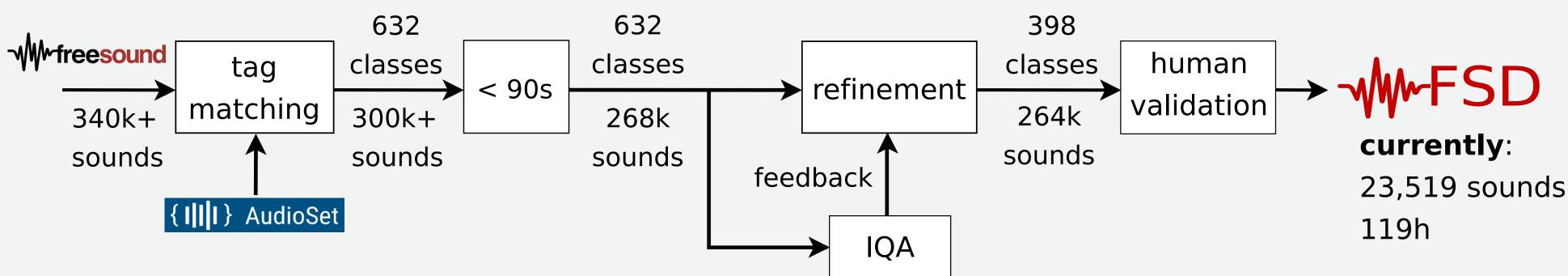
MTG / freesound-datasets

Exploration of a category

Discussion in GitHub repository

Our first dataset: **FSD**

- Audio samples from Freesound
- Google's AudioSet Ontology [1]
- Data gathering and pre-processing



General-purpose & large-scale

http://en.wikipedia.org/wiki/Theremi

Audio event recognition

URI

Challenges & future work

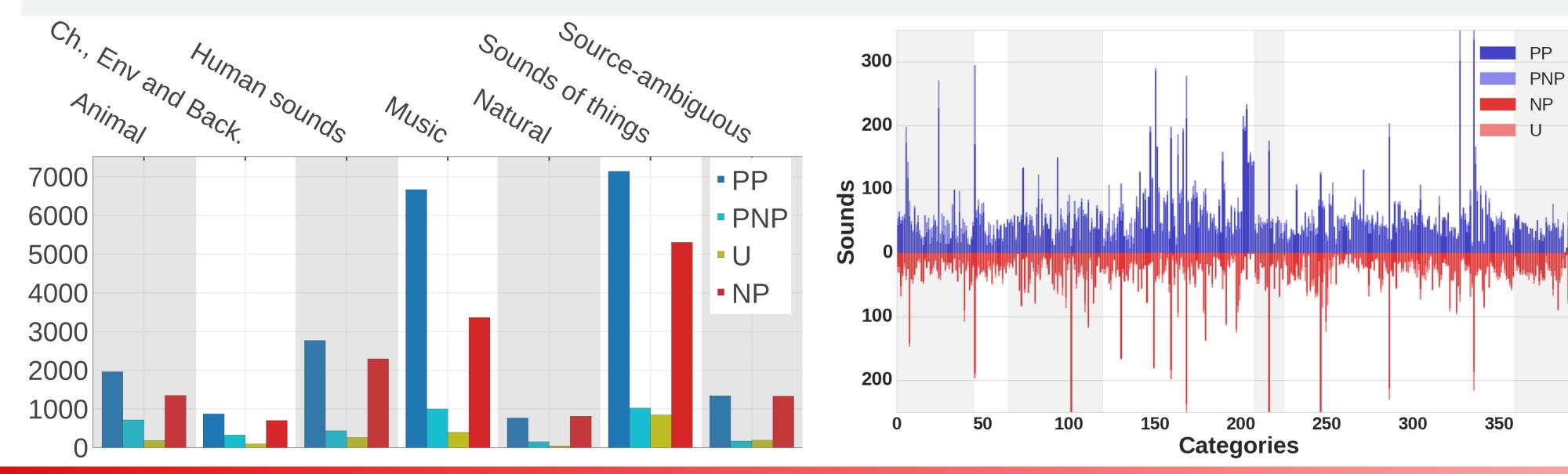
Crowdsource annotations:

- quality control
- annotator agreement
- **Mapping** to AudioSet
- Towards complete labeling of samples
- First **FSD release:**
 - data splits & baseline



Validating Annotations: presence of sound category

- Present and Predominant / Present but not Predominant / Not Present / Unsure



More annotation tasks:

- timestamps for events

More functionalities:

- report mislabelings & faulty sounds

References & resources

• [1] Gemmeke et al. Audio Set: An ontology and human-labeled dataset for audio events. **ICASSP**, 2017

- Platform: https://datasets.freesound.org/
- **GitHub**: https://github.com/MTG/freesound-

datasets