

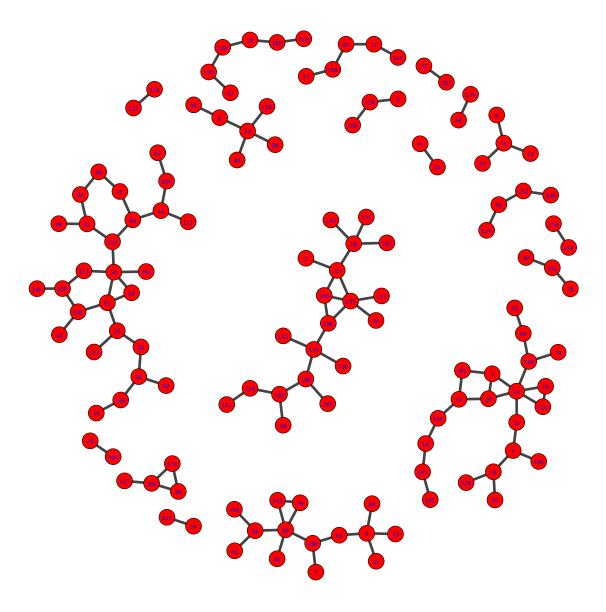
## Using Convolutional Neural Networks for Speech Recognition

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## ADDITIONAL GRAPHICS

2	AguarunaAwajun	48	Galela	93	Lobi	131	Pijin
3	Akha	50	Garhwali	94	Luwo		Qeqchi
4	Akoose	51	Gidar	95	Madi		QuechuaEastern
5	Alangan		Guahibo	97	MalagasyPlateau		QuechuaMargosYarowilcaLauricocha
6	AlbanianTosk	54	Hadiyya	99	Marba_Azumeina	137	QuechuaNorthJunin
7	Alladian	55	Hiligaynon	100	MayaMopan	138	QuechuaSouthernConchucosAncash
8	AltaiSouthern	56	Hindi	101	MazahuaCentral	140	Romanian
9	Anufo	57	HmongDaw	102	Mentawai	141	RomaniSinti
12	ArabicSudaneseSpoken	58	Huambisa	103	MixtecAyutla	143	Sango
15	Avokaya	59	${\it Huave de San Mateodel Mar}$	104	MofuGudur	145	Sasak
17	AwaPNG	64	IxilNebaj	105	MongolianHalh	146	SauriaPaharia
	Aymara	65	Javanese		Mongondow		Shuar
19	AzerbaijaniNorth	68	JurModo	108	Moro	152	Tektiteko
20	Bali		Kalabari	109	Mundari		TepehuaPisaflores
21	Bekwarra	70	KalmykOirat	110	Munukutuba		TepehuaTlachichilco
22	BelizeKriolEnglish		Kannada	111	Murle	156	Teribe
24	Bhojpuri	72	Karakalpak		Musgu	157	Teso
25	Biate	74	Kashinawa		NagaAo	158	Thai
26	BicolanoCentral	75	Kazakh		NahuatlGuerrero		Themne
28	Bora	76	Kera	115	NahuatlHighlandPuebla	160	Ticuna
29	BruEastern		Khasi	116	NahuatlNorthernPuebla	161	Tobelo
30	CakchiquelSouthCentral	79	KicheCunen	117	Napu	162	
31	- · · · · · · · · · · · · · · · · · · ·	80	KilivilaKiriwina	118	NigerianPidgin	163	TotonacHighland
	ChayahuitaShawi	_	KokBorok	120	OromoEastern	166	Tuva
35	ChinantecdeUsila	_	KolamiNorthwestern	121	OtomiMezquital	167	TzeltalBachajon
37	ChujIxtatan	83	Konso		Paez	168	Vai
39	DanEast	_	Koorete	_	Palauan	169	Vietnamese
40	Dangaleat	85	KoreanNorth	124	PalaungRuching	170	Waimaha
1	DinkaNortheastern	87	Kui	_	Pamona_BahasaTaa	171	Waiwai
	Duala	88	Kuman		Pampangan		WichiLhamtesNoctenWeenhayek
43	Duri		Kumyk		Parecis		Yawa
	Dutch	90	Kyrgyz	_	Patamona	176	ZapotecSierradeJuarez
45	Eleme	92	Lao	130	Peve		

FIG. 1. Languages corresponding to the numbers.



 $FIG.\ 2.\ Languages\ connected\ by\ positive\ correlations\ for\ the\ dataset\ with\ 176\ classes.\ A\ small\ cluster\ is\ included\ in\ the\ main\ text.\ The\ complete\ graph\ is\ included\ in\ this\ graphic.$ 

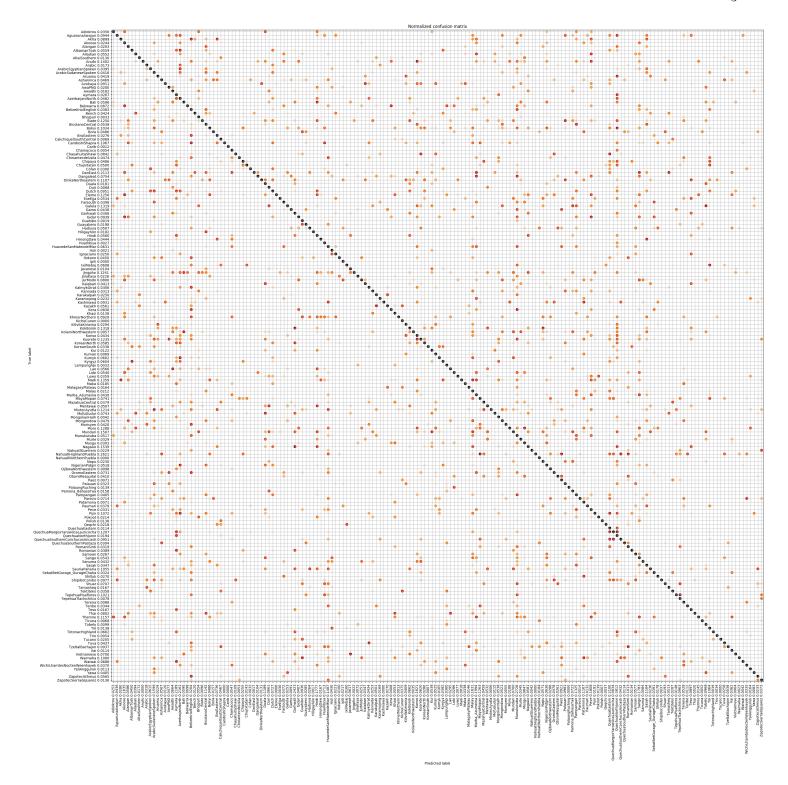


FIG. 3. Confusion Matrix for the validation of the network trained on the dataset consisting of audio files from the Topcoder challenge with 176 languages. Numbers after the labels give the sum of the corresponding row or column without the diagonal entry. This number gives an indication, how often a language is misclassified as any other one for the rows. For the columns it indicates, how often other languages are wrongfully classified as the language given.