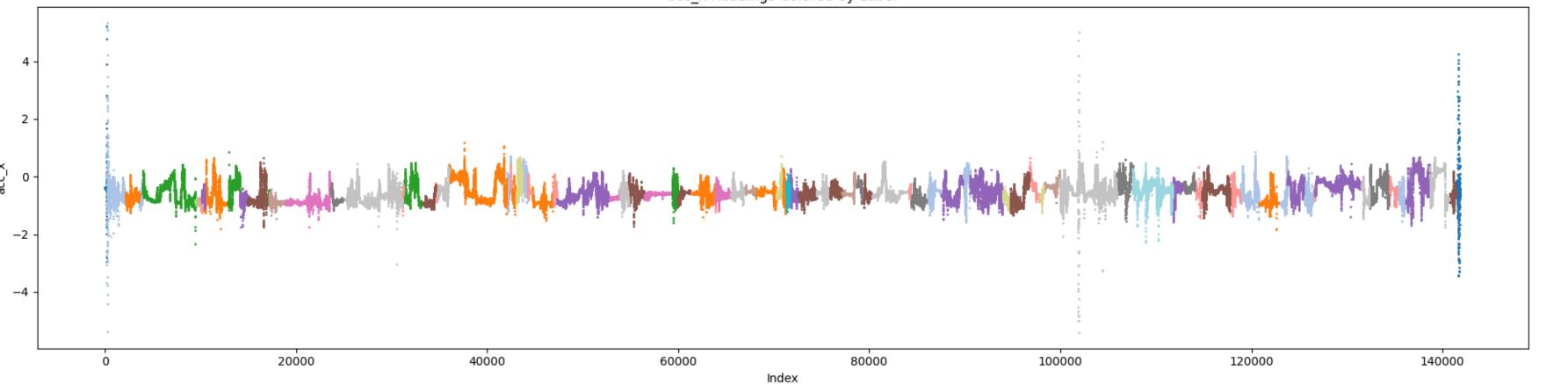
Final Progress Report TEEP Internship

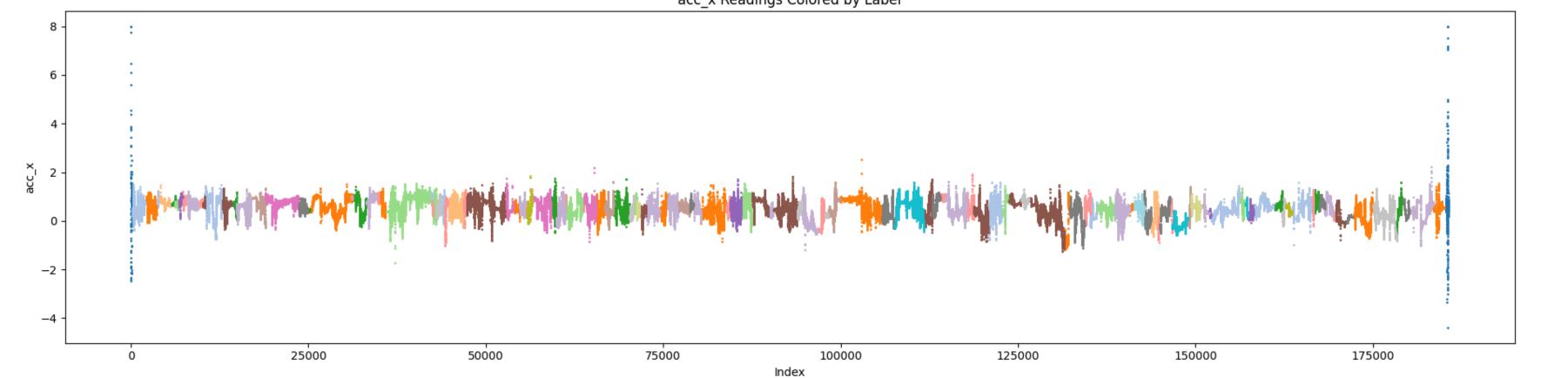
by Fairuuz Nurdiaz Amaanullah

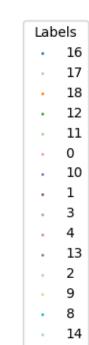
Exploratory Data

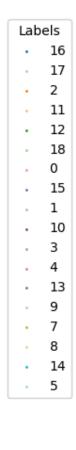
acc_x Readings Colored by Label

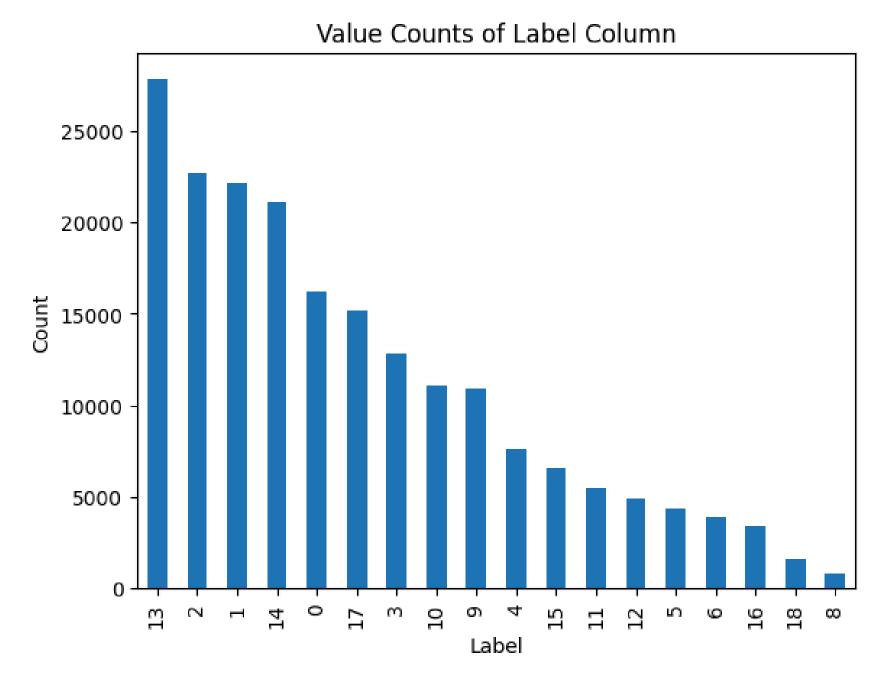


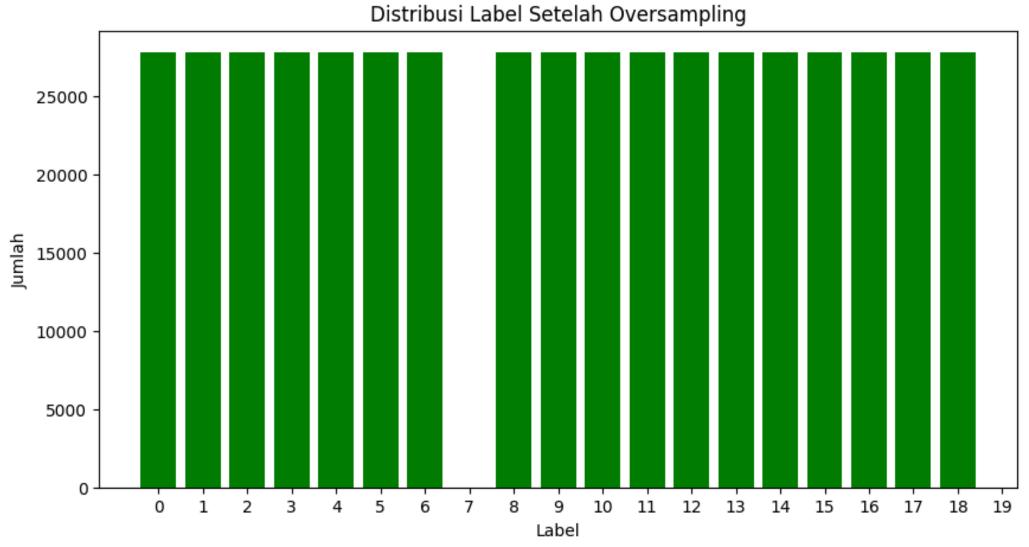












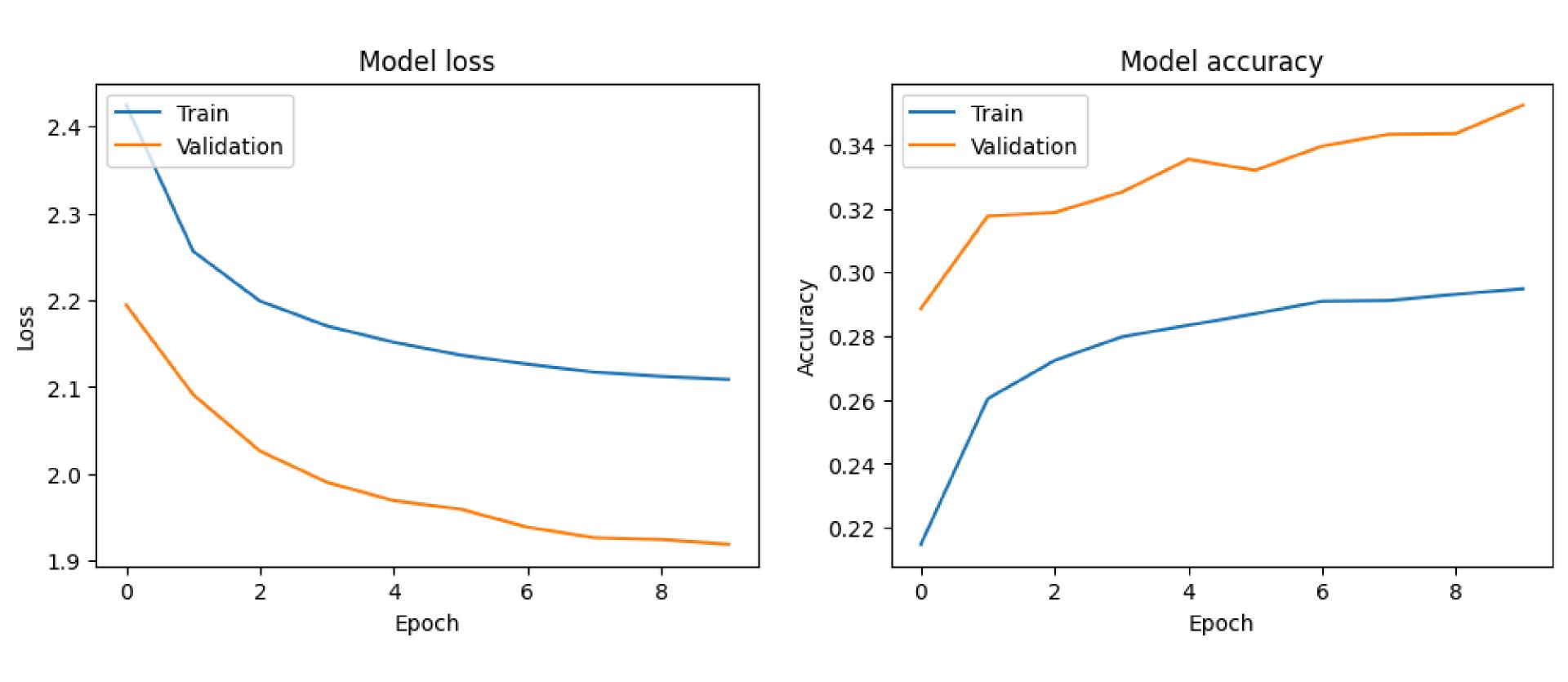
Before Oversampling

After Oversampling

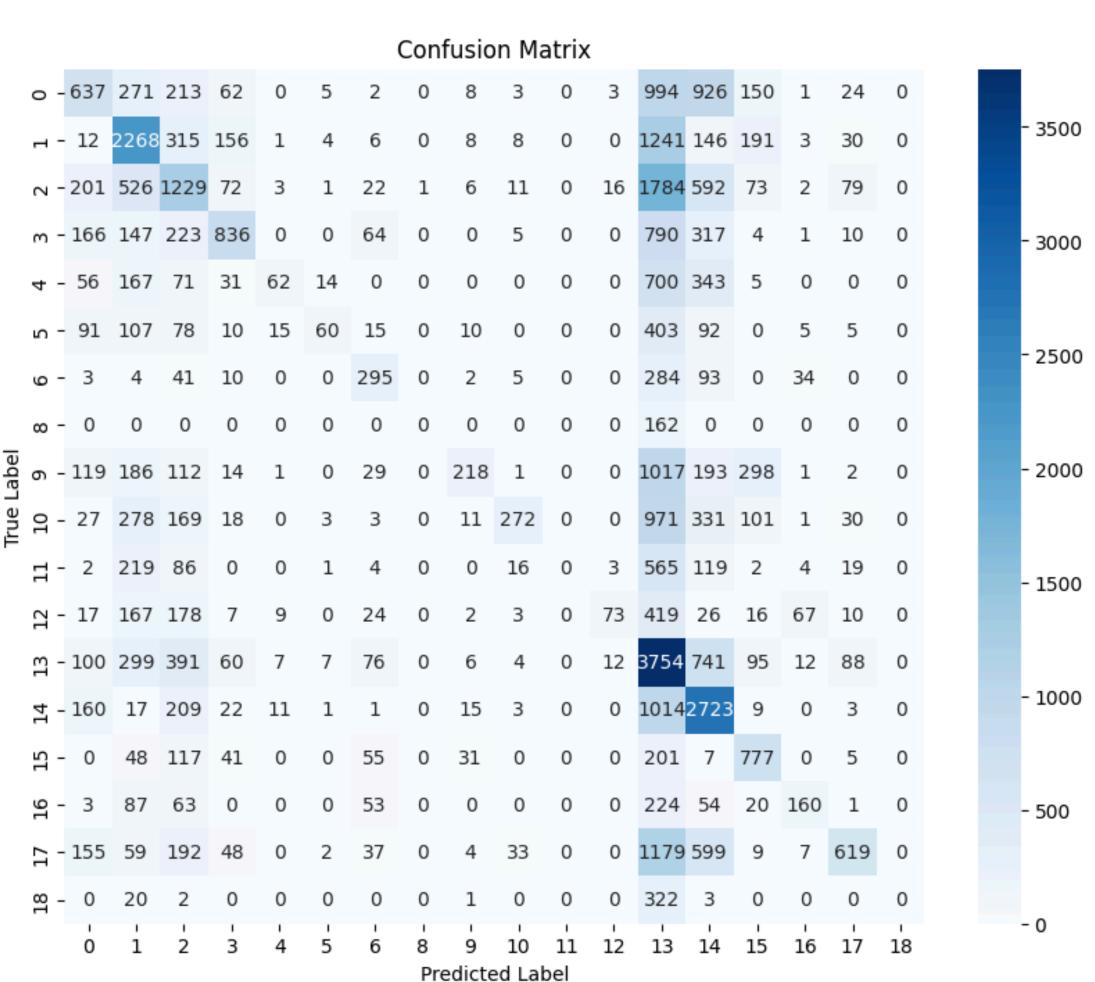
Compare Evaluation Model

No	Model	Loss	Accuracy
1	CNN	1,7074	0.3485
2	LSTM	1,7188	0.3524
3	ResNet	1,3026	0.5466
4	Resnet CNN	1, 1806	0.5956
5	Resnet CNN Oversampling	0.8674	0.7175

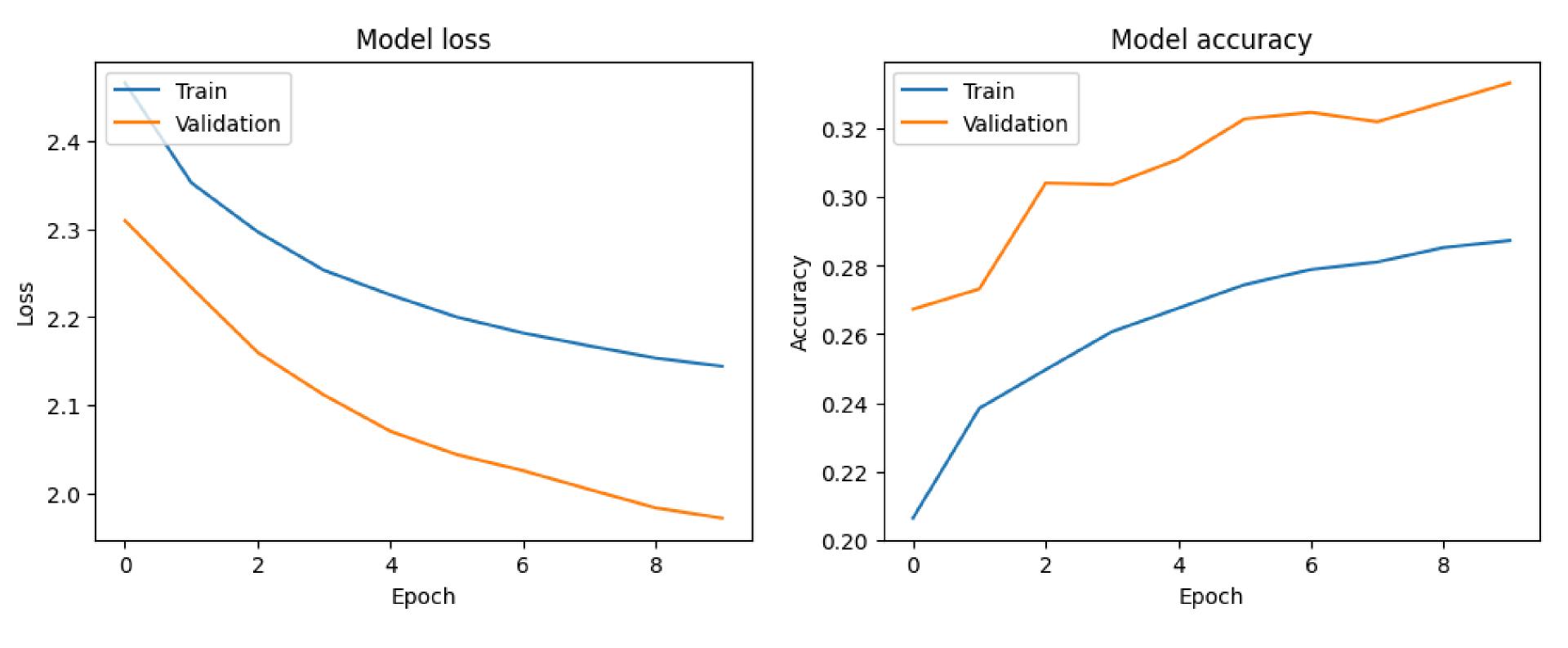
CNN Evaluation Curve



CNN Confusion Matrix



LSTM Evaluation Curve

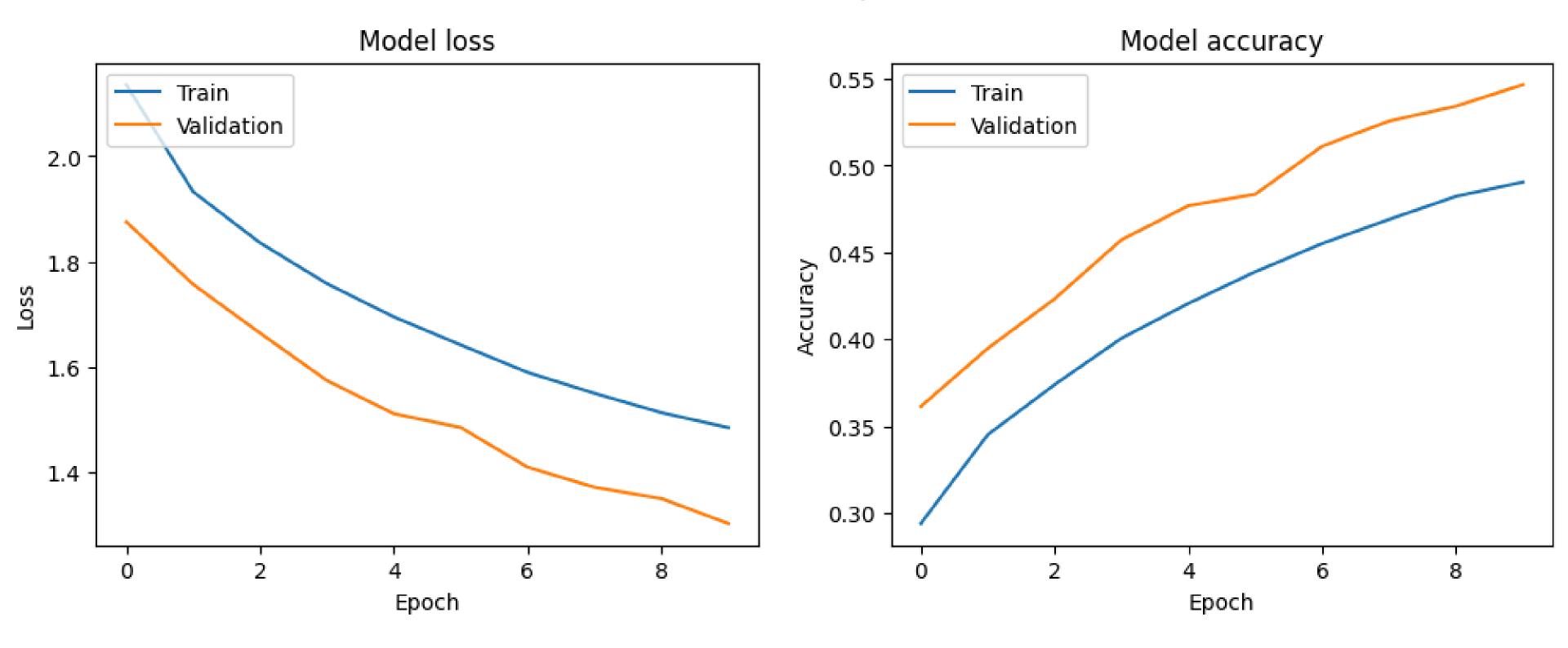


LSTM Confusion Matrix

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<u> </u>	OHI	us	IUII	1*10	4 LI I A

	Confusion Matrix																					
C	, -	720	300	240	59	0	0	3	17	1	72	0	9	805	866	137	7	63	0			
-	- ۱	32	2266	308	96	9	0	4	0	2	16	0	8	1173	185	239	3	48	0		- 3000	
0	۱ -	270	548	1138	59	0	0	26	7	6	9	0	33	1717	578	67	11	149	0		3000	
٣	n -	148	319	281	454	3	0	84	0	0	12	0	1	789	404	2	2	64	0			
4		79	215	81	6	0	0	0	0	0	0	0	1	701	363	2	0	1	0		- 2500	
ני	- د	112	131	73	5	0	0	35	0	7	2	0	9	370	117	0	1	29	0			
v	-	3	7	43	4	0	0	323	0	0	6	0	11	200	163	0	0	11	0			
α	o -	0	0	0	0	0	0	0	150	0	0	0	0	12	0	0	0	0	0		- 2000	
abel 9	٠ -	195	183	132	3	0	0	47	0	34	0	0	1	932	247	397	5	15	0			
] Je	3 -	52	284	170	9	0	0	4	0	0	347	0	4	947	280	92	0	26	0		- 1500	
-	: -	4	220	93	0	0	0	7	0	0	2	0	7	566	113	5	2	21	0		1500	
12	4 -	13	113	169	7	0	0	35	0	1	15	0	177	427	37	12	0	12	0			
7	3 -	163	389	329	18	0	0	96	73	2	34	0	7	3350	857	149	5	180	0		- 1000	
14	ξ-	126	44	260	17	0	0	0	0	8	91	0	2	863	2730	7	0	40	0			
7	3 -	0	32	104	60	0	0	71	0	0	7	0	1	184	19	804	0	0	0			
16	3 -	2	74	86	0	0	0	152	0	0	1	0	39	194	77	26	5	9	0		- 500	
17	- -	104	82	227	19	0	0	44	0	3	79	0	6	1022	614	9	1	733	0			
α	q -	0	23	1	0	0	0	0	40	0	1	0	0	218	9	0	0	56	0			
		0	i	2	3	4	5	6	8 Pre	9 dicte	10 ed Lal	ı'ı oel	12	13	14	15	16	17	18		- 0	

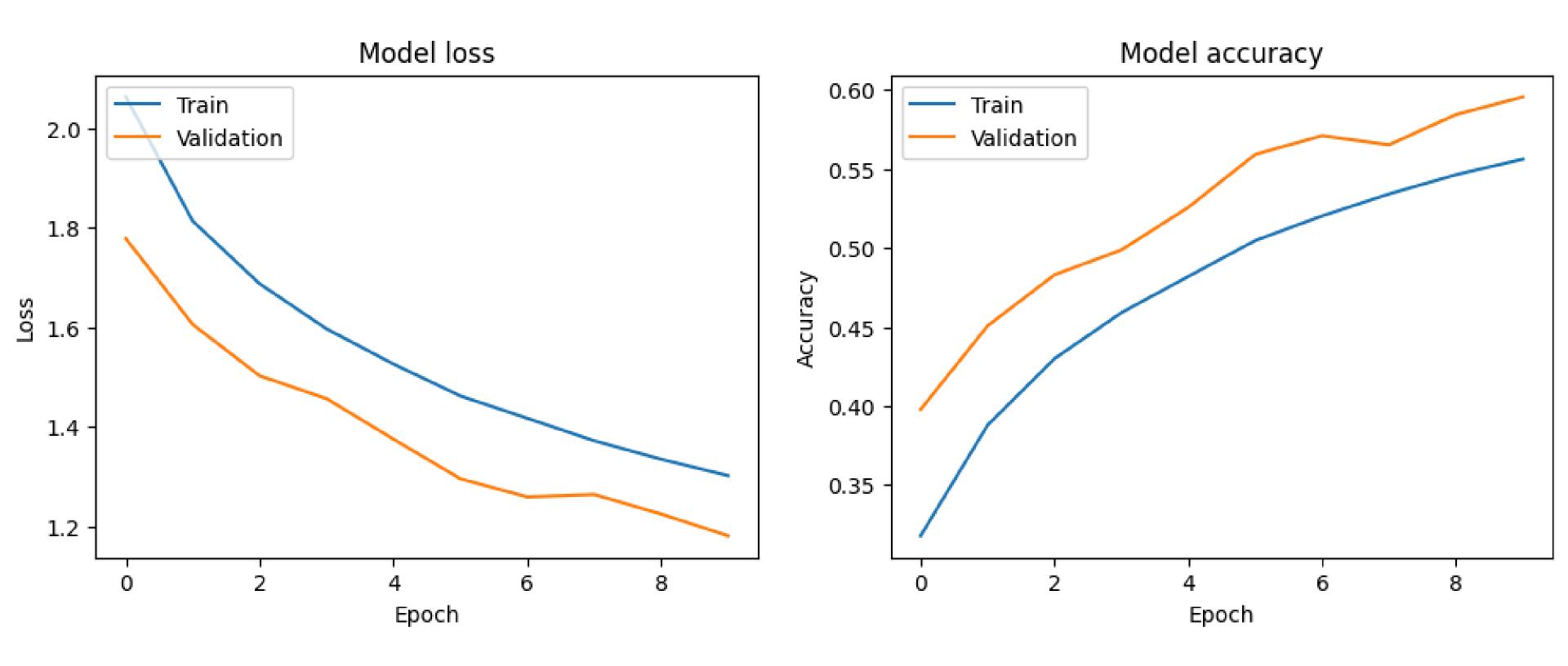
ResNet Evaluation Curve



ResNet Convusion Matrix

	Confusion Matrix																					
	0 -	1681	191	171	99	25	63	15	10	107	27	21	21	202	382	84	10	189	1		- 3000	
	٦ -	76	3037	206	141	47	24	31	0	108	43	28	22	328	78	84	4	120	12			
	7	246	586	2329	149	64	21	33	6	70	87	13	26	462	221	43	12	239	11			
	m -	72	165	110	1447	20	0	77	0	42	12	2	5	214	202	15	6	174	0		- 2500	
	4 -	- 60	167	128	40	592	20	15	0	32	10	5	2	220	111	4	1	42	0			
	ი -	- 75	55	74	21	95	218	37	0	28	17	3	6	145	55	0	4	58	0			
	9 -	- 3	14	14	10	2	4	503	0	9	3	4	11	74	67	7	3	42	1		- 2000	
	ω -	0	0	0	0	0	0	0	148	0	0	0	0	14	0	0	0	0	0			
ape	ი -	134	159	125	58	15	7	54	0	1074	27	10	6	240	116	79	9	76	2			
rueL	9 -	- 51	318	170	34	49	23	18	0	62	950	14	34	241	154	22	2	71	2		- 1500	
										32								58	0			
	12	- 54	122	87	17	25	4	18	0	17	10	5	365	141	30	6	43	74	0			
	13	231	352	337	125	122	30	100	30	145	69	20	37	3134	489	46	14	359	12		- 1000	
	14 -	220	46	167	41	70	6	38	0	28	38	20	5	228	3004	16	3	254	4			
	15	- 24	89	84	18	15	0	49	0	166	7	0	7	55	33	712	0	23	0			
	16	- 16	91	47	17	1	0	14	0	4	14	2	22	19	38	12	343	25	0		- 500	
	17	165	69	150	63	28	7	47	0	59	32	1	24	230	285	17	6	1758	2			
	8 -	- 1	9	7	1	1	7	1	36	14	2	0	0	89	2	0	0	52	126			
0 1 2 3 4 5 6 8 9 10 11 12 13 14 15 16 17 18 Predicted Label													- 0									

Resnet LSTM Evaluation Curve

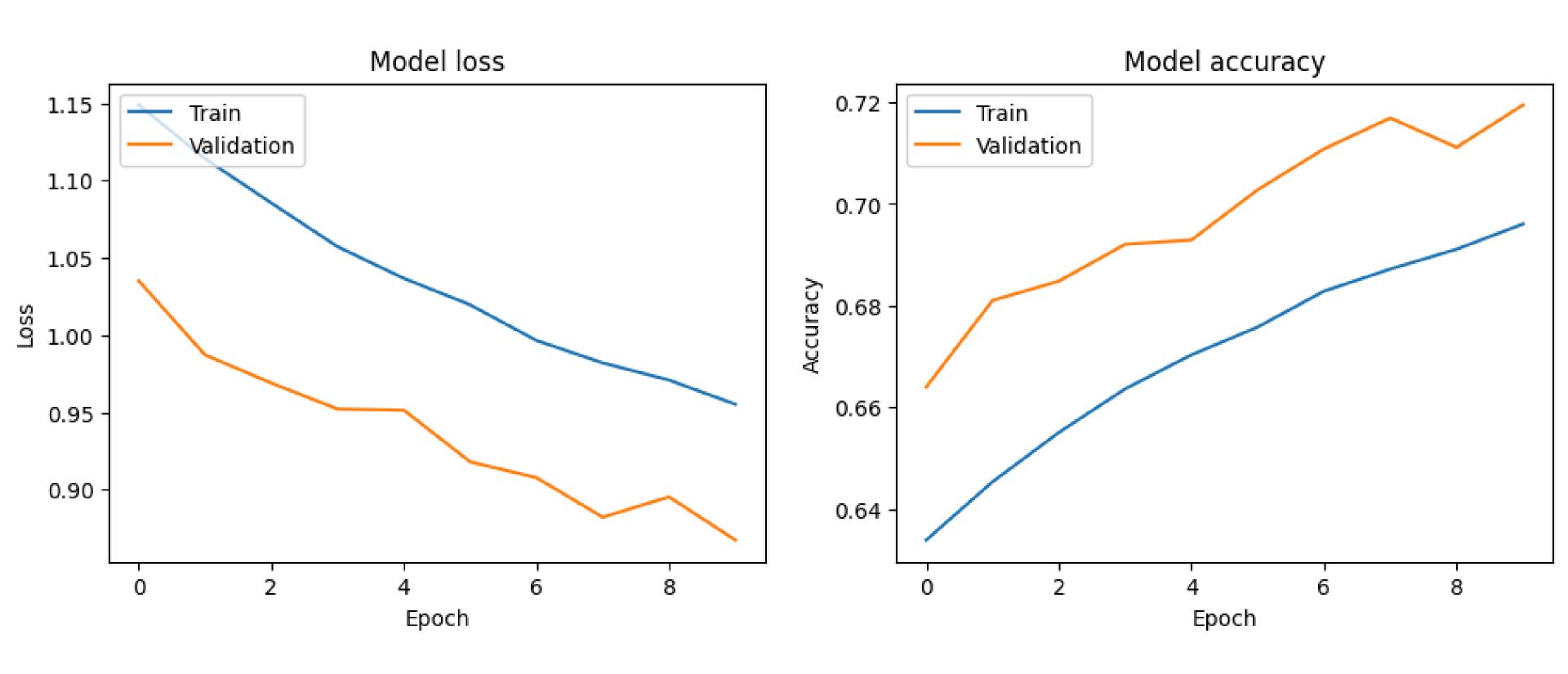


Resnet LSTM Confusion Matrix

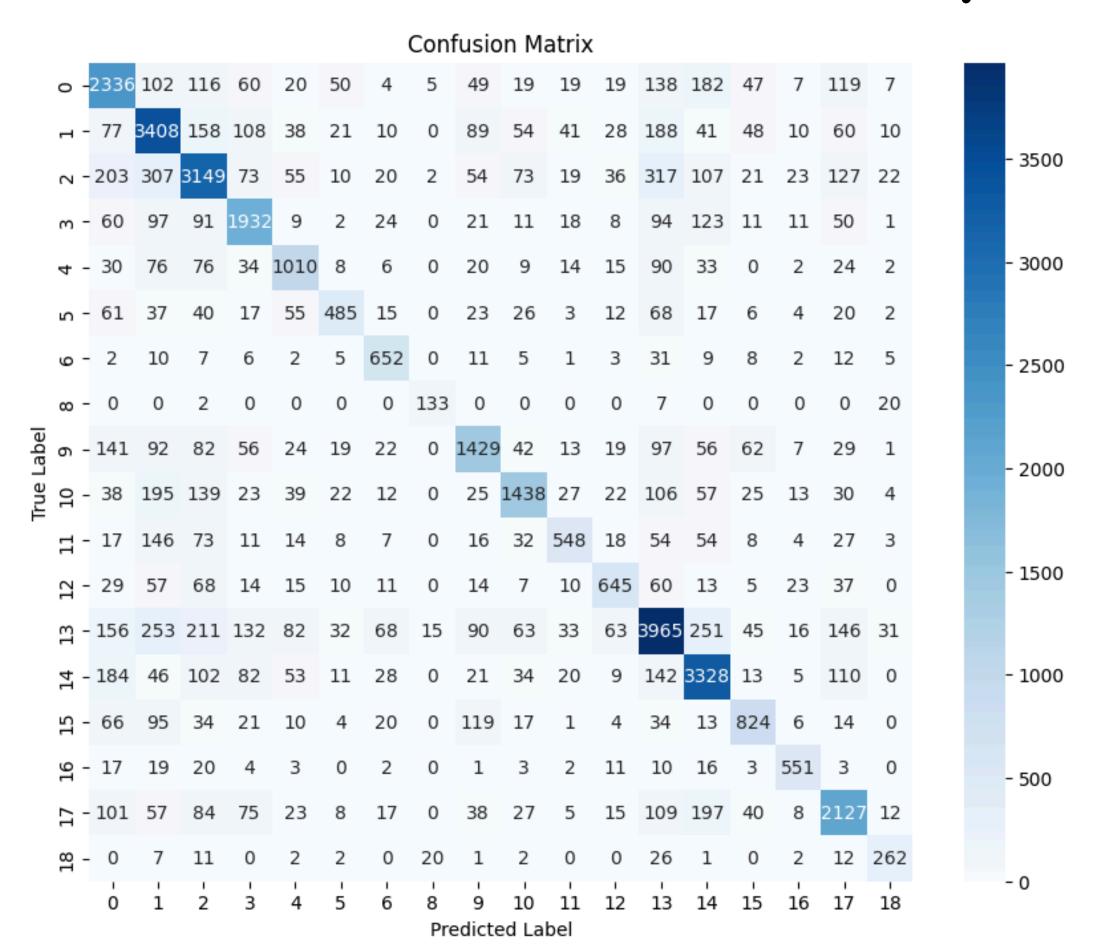
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	Confusion Matrix																					
	0 -	1681	191	171	99	25	63	15	10	107	27	21	21	202	382	84	10	189	1		- 3000	
	٦ -	76	3037	206	141	47	24	31	0	108	43	28	22	328	78	84	4	120	12			
	7 -	246	586	2329	149	64	21	33	6	70	87	13	26	462	221	43	12	239	11			
	m -	72	165	110	1447	20	0	77	0	42	12	2	5	214	202	15	6	174	0		- 2500	
	4 -	60	167	128	40	592	20	15	0	32	10	5	2	220	111	4	1	42	0			
	ი -	- 75	55	74	21	95	218	37	0	28	17	3	6	145	55	0	4	58	0			
	9 -	- 3	14	14	10	2	4	503	0	9	3	4	11	74	67	7	3	42	1		- 2000	
	∞ -	0	0	0	0	0	0	0	148	0	0	0	0	14	0	0	0	0	0			
abe	ი -	134	159	125	58	15	7	54	0	1074	27	10	6	240	116	79	9	76	2			
rue	일 -	- 51	318	170	34	49	23	18	0	62	950	14	34	241	154	22	2	71	2		- 1500	
	11 -	27	239	102	9	22	7	7	0	32	36	270	17	128	77	5	4	58	0			
	12	54	122	87	17	25	4	18	0	17	10	5	365	141	30	6	43	74	0			
	13	231	352	337	125	122	30	100	30	145	69	20	37	3134	489	46	14	359	12		- 1000	
	14 -	220	46	167	41	70	6	38	0	28	38	20	5	228	3004	16	3	254	4			
	12	24	89	84	18	15	0	49	0	166	7	0	7	55	33	712	0	23	0			
	16	16	91	47	17	1	0	14	0	4	14	2	22	19	38	12	343	25	0		- 500	
	17	165	69	150	63	28	7	47	0	59	32	1	24	230	285	17	6	1758	2			
	- 18	- 1	9	7	1	1	7	1	36	14	2	0	0	89	2	0	0	52	126			
0 1 2 3 4 5 6 8 9 10 11 12 13 14 15 16 17 18 Predicted Label														- 0								

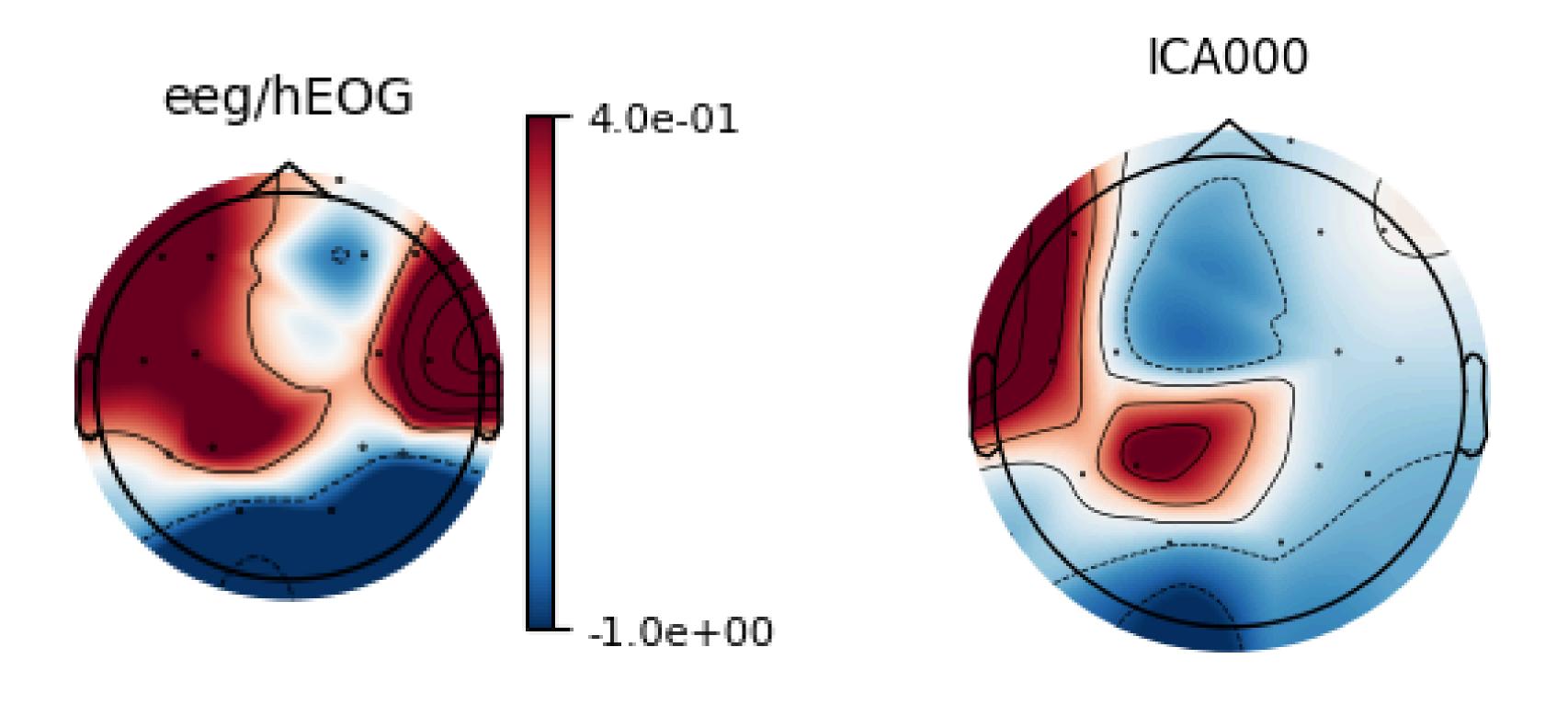
Resnet + LSTM after Oversampling



Resnet + LSTM after Oversampling



Removal Ärtefac EEG Data



EOG Regrresson

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