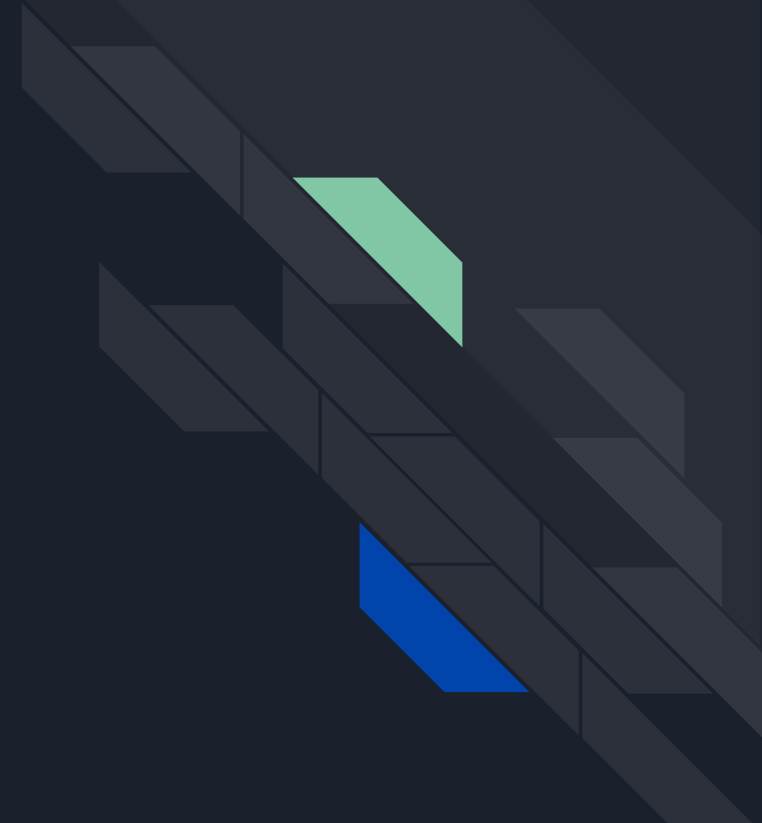
A decorative graphic on the left side of the slide consisting of two overlapping parallelograms. The front one is blue and the back one is a light greenish-blue. They are positioned diagonally, with the blue one in front of the green one.

Personality, Compatibility and Conflict

EECS 6895 Alek Anichowski aja2173

“Conflict is perceived as the perceived incompatibilities by parties of the views, wishes, and desires that each holds”





Conflict Corpus

1430 clips, (30 seconds each),
from political debates

Physical and inferential traits,

#	Question	Layer
Q1	The atmosphere is relaxed (-)	I
Q2	People wait for their turn before speaking (-)	P
Q3	One or more people talk fast (+)	P
Q4	One or more people fidget (+)	P
Q5	People argue (+)	I
Q6	One or more people raise their voice (+)	P
Q7	One or more people shake their heads and nod (+)	P
Q8	People show mutual respect (-)	I
Q9	People interrupt one another (+)	P
Q10	One or more people gesture with their hands (+)	P
Q11	One or more people are aggressive (+)	I
Q12	The ambience is tense (+)	I
Q13	One or more people compete to talk (+)	P
Q14	People are actively engaged (+)	I
Q15	One or more people frown (+)	P

TABLE 2

The table shows the questionnaire used to annotate the clips of the corpus. The first column reports the question ID, the second column shows the question with its sign and the third column says whether the question belongs to the Inferential (I) or Physical (P) layer.

Previous Work

Ref.	Subjects	Behavioral Cues	Phenomenon	Annotation	Data	Performance
[7]	138	Turn Organization Prosody Speaker Adjacency Stats.	conflict	categorical	SSPNet Conflict Corpus	$F1 = 76.1\%$ clip accuracy (3 classes)
[24]	138	Turn Organization Prosody Speaker Adjacency Stats.	conflict	dimensional	SSPNet Conflict Corpus	correlation 0.75 predicted / real conflict level
[29]	40-50	Prosody Lexical	(dis)agreement	categorical	9854 spurts ICSI Meetings	61% accuracy
[30]	53	Dialogue Acts Lexical	hot spots	categorical	32 ICSI meetings	0.4 chance normalized accuracy
[31]	20-30	Prosody	hot spots	categorical	13 ICSI meetings	significant correlation
[32]	40-50	Duration, Lexical Speaker Adjacency	(dis)agreement	categorical	9854 spurts ICSI Meetings	84% accuracy
[33]	16	Prosody, Lexical Dialogue Acts	(dis)agreement	categorical	20 AMI Meetings	$F1 \sim 45\%$
[34]	44	Prosody Gestures	(dis)agreement	categorical	147 Debate clips from Canal9	64.2% accuracy
[36]	26	Turn Organization Steady Conversational Periods	conflict	categorical	13 Debates from Canal9	80.0% turn classification accuracy
[37]	138	Overlapping Speech to Non-Overlapping Speech Ratio	conflict	categorical	SSPNet Conflict Corpus	$UAR = 83.1\%$ clip accuracy (2 classes)
[38] (1)	138	Feature Selection Over OpenSmile Acoustic Features	conflict	categorical	SSPNet Conflict Corpus	$UAR = 83.9\%$ clip accuracy (2 classes)
[38] (2)	138	Feature Selection Over OpenSmile Acoustic Features	conflict	dimensional	SSPNet Conflict Corpus	correlation 0.82 predicted / real conflict level
[39]	26	Lexical	blaming acceptance	categorical	130 Couple Therapy Sessions	$> 70.0\%$ classification accuracy



Features (Praat)

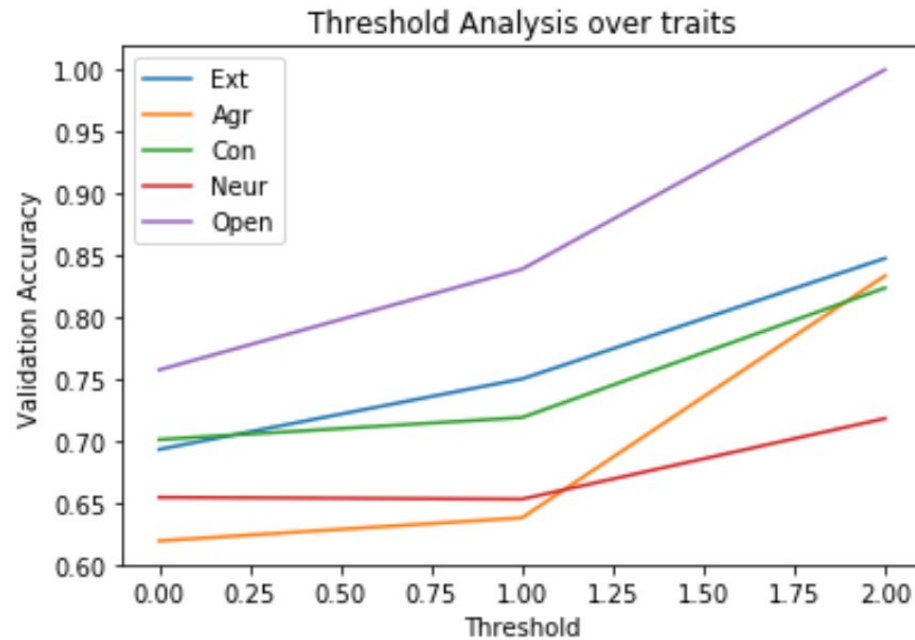
Raw Features:

Pitch, intensity, formant1, formant2, harmonicity

Statistics:

Mean, min, average, standard deviation

Personality Prediction from prosodic features (Adaboost Classifier)



Threshold 1

Ext 0.75

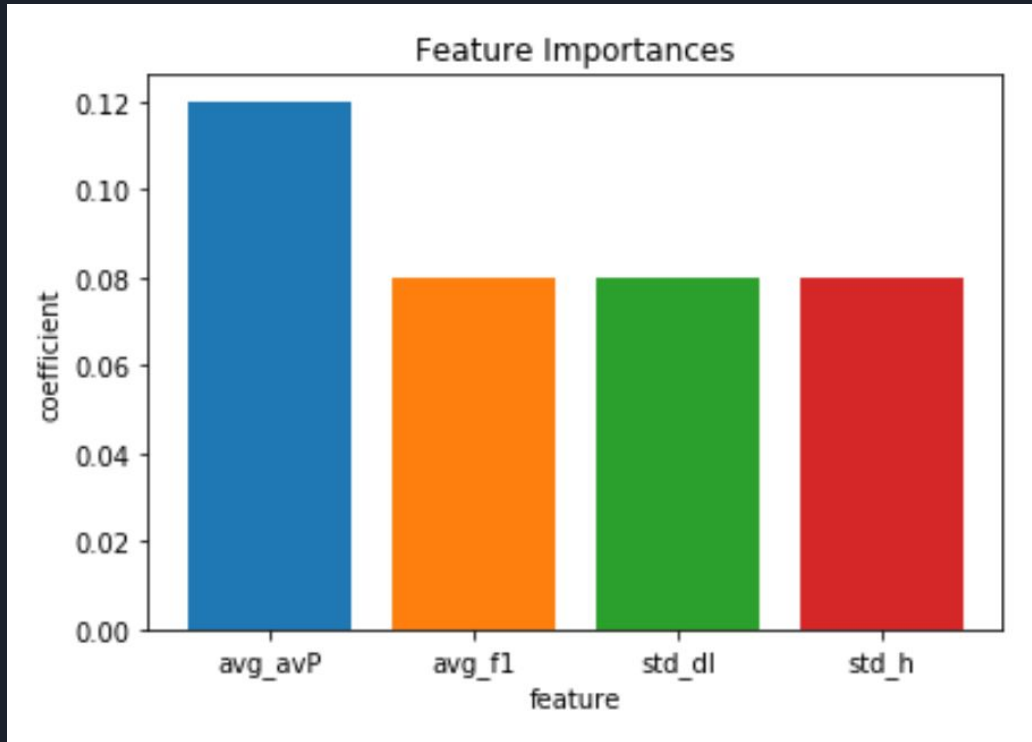
Agr 0.6376811594202898


Con 0.71875

Neur 0.6527777777777778

Open 0.8387096774193549

Personality Feature Importance





Conflict Corpus Manual Diarization (used in personality divisions)

Example:

0.0, 15.698, spk_91

15.698, 22.325, spk_50

22.325, 29.354, spk_53

29.354, 30.0, spk_50, spk_53

speaker	Ext	Agr	Con	Neur	Open	
0	spk_155	1	0	0	1	1
1	spk_91	0	0	0	1	0
2	spk_53	0	1	1	0	0



Results

Previous papers: ~0.80 correlation

Our results:

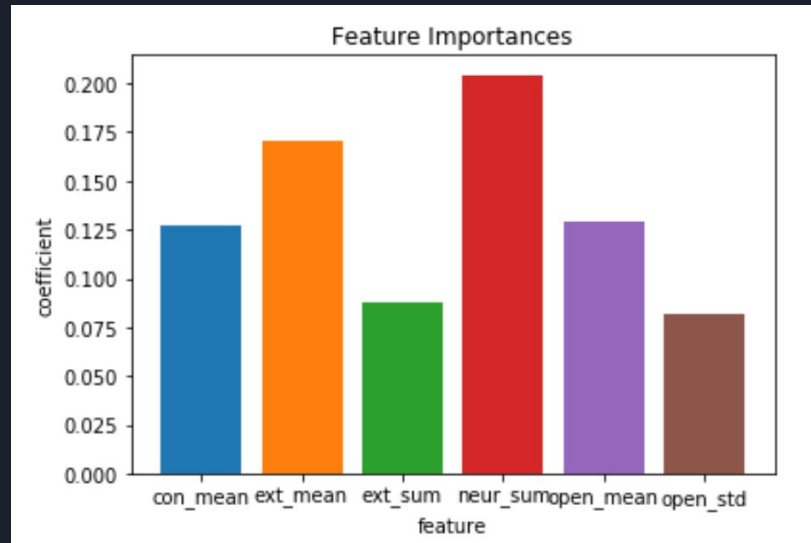
Without personality scores: 0.6783

Personality Scores: 0.7492

Feature Significance

Pearson Correlations

- ext_mean (0.39)
- ext_sum (0.42)
- neur_sum(0.29)
- con_std (-0.21)





Works Cited

Kim, Samuel, et al. “Predicting Continuous Conflict Perception with Bayesian Gaussian Processes.” *IEEE Transactions on Affective Computing*, vol. 5, no. 2, Jan. 2014, pp. 187–200., doi:10.1109/taffc.2014.2324564.

Mohammadi, Gelareh, and Alessandro Vinciarelli. “Automatic Personality Perception: Prediction of Trait Attribution Based on Prosodic Features Extended Abstract.” *2015 International Conference on Affective Computing and Intelligent Interaction (ACII)*, 2015, doi:10.1109/acii.2015.7344614.

Vinciarelli, A., et al. “Collecting Data for Socially Intelligent Surveillance and Monitoring Approaches: The Case of Conflict in Competitive Conversations.” *2012 5th International Symposium on Communications, Control and Signal Processing*, 2012, doi:10.1109/isccsp.2012.6217878.