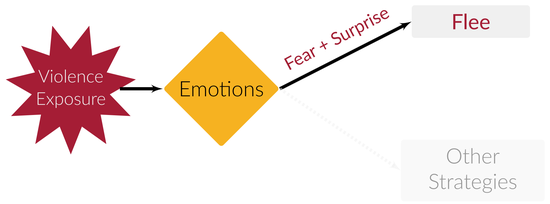
Emotions and Flight from Violence: Evidence from Punjabi/English Video Archives

Aidan Milliff

Which Emotions Explain Flight from Violence?

When people are exposed to violence, which emotional experiences are associated with *fleeing* vs. other strategies of survival?



Experiencing *fear* and *surprise* increases the likelihood that people choose to flee.

Oral Histories as Quantitative Data

- Social scientists can rarely measure emotions in "real time" during first-hand exposure to violence.
- I use oral histories to measure emotion-proxies after the fact using a combination of qualitative and quantitative tools.

Measuring Emotions in Videos and Text

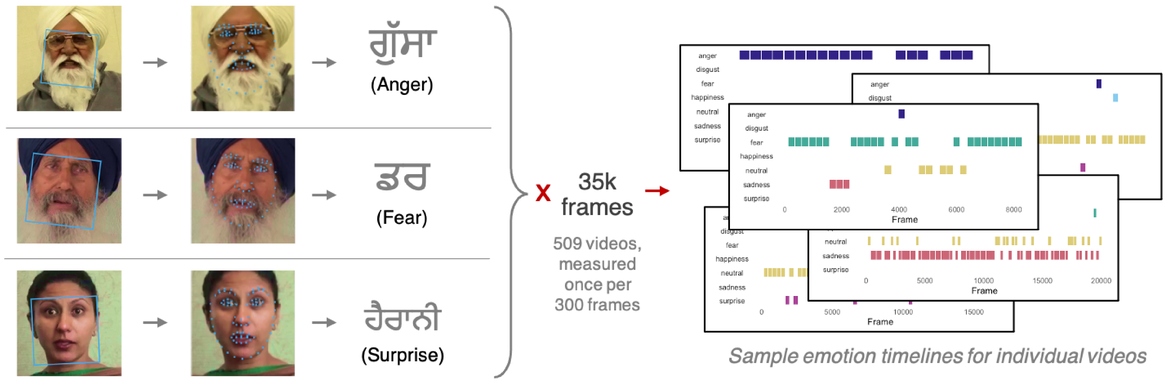
Data

- 509 videos from the *1984 Living History Project*, documenting violence in the Punjab Crisis and 1984 pogroms

Tools

- ☹ / ☺ **Emotion Detection**: Pre-trained CV implementation of Ekman FACS [1] from `face++` cognitive services.
- 💬 **Text Classification**: Task-specific fine-tuning of `MuRIL` English + Indic Languages transformer model[2]

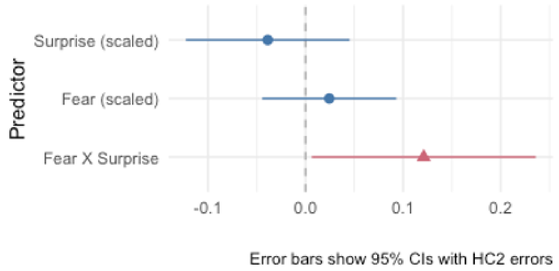
`face++` Emotion Measurement Pipeline



Sample emotion timelines for individual videos

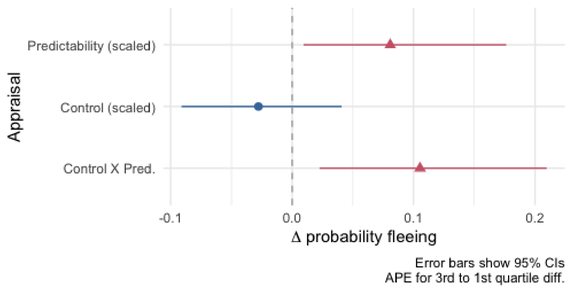
Fear and Surprise Predict Flight from Violence

Facial Expression Emotion Detection Results



- Interaction of Fear and Surprise predicts flight.
- 1 standard deviation change in interaction term is associated with +12% change in probability of flight from violence.
- Short-term flight strategies are associated with durable migration.

Text Classifier Results



- 3rd to 1st quartile change in interaction is associated with +11% change in probability of flight from violence.
- Text classifier measures verbal appraisals of "control" and "predictability" to proxy for *low* fear and *low* surprise [3].

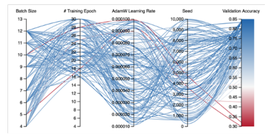
`MuRIL` Text Classification Pipeline

Label Training Sentences → Re-Train MuRIL Model

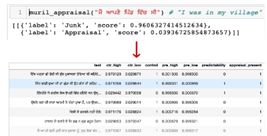
- Label ~3k randomly selected oral history sentences for relevance, control, predictability

- With pre-trained MuRIL model as initial weights, use labeled data to continue training in PyTorch

Fine-tune Hyperparameters → Deploy Trained Model



- Bayesian search over training hyperparameters to maximize validation accuracy



- Verify best model on held-out data and deploy, labeling all ~29k sentences in oral history corpus

Discussion + Future Work

- Emotions are a large and significant influence on migration behavior in response to violence
- Pre-trained models perform well for some social science tasks: Here, off-the-shelf and domain-tuned models support similar conclusions.
- Check out my dissertation and job market paper for more development of this research!

References

[1] P. Ekman and W. V. Friesen. *Unmasking the Face: A Guide to Recognizing Emotions from Facial Clues*. ISHK, 2003.

[2] S. Khanuja, D. Bansal, S. Mehtani, S. Khosla, A. Dey, B. Gopalan, D. K. Margam, P. Aggarwal, R. T. Nagipogu, S. Dave, S. Gupta, S. C. B. Gali, V. Subramanian, and P. Talukdar. Muril: Multilingual representations for indian languages. arXiv, 2021.

[3] J. S. Lerner and D. Keltner. Beyond valence: Toward a model of emotion-specific influences on judgement and choice. *Cognition and Emotion*, 14(4):473–93, 2000.