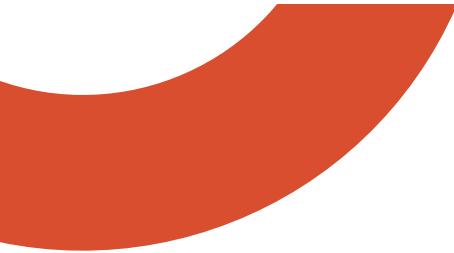


PIXELS TO FEELINGS

A Comparison of Visual Sentiment Methods





THE DIFFICULTY

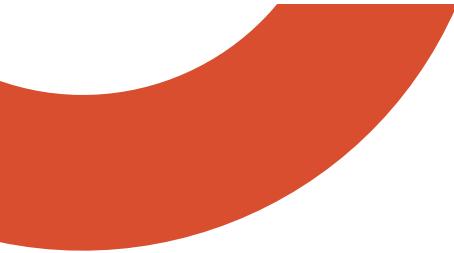
What's different in object recognition...



CAT



DOG



THE DIFFICULTY

...can represent the same emotion...



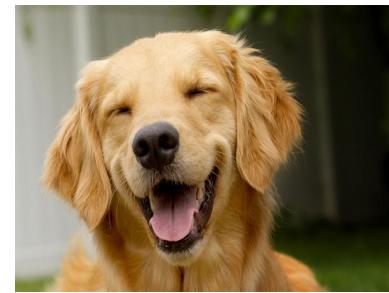
JOY



JOY

THE DIFFICULTY

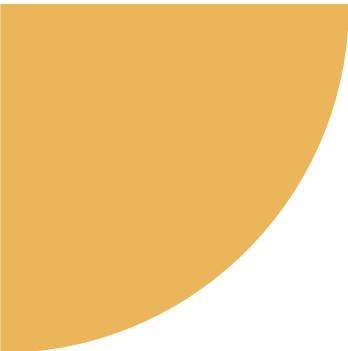
...with that emotion applicable across a variety scenes/objects.



JOY

USE CASE

- Historically, sentiment analysis has been text-based
 - But text is only a portion of social media content
- Research suggests associations between images and wide range of emotions (Kurdi, Lozano, & Banaji, 2016)



OBSTACLES

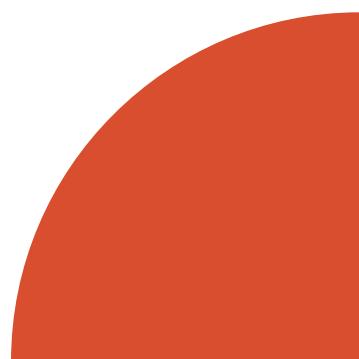


01

REPRESENTATIVE
TRAINING DATA

02

MODELING AFFECTIVE
COMPONENTS



POTENTIAL SOLUTIONS



01



WEDEmo

- ~268,000 images
- Hierarchical labeling

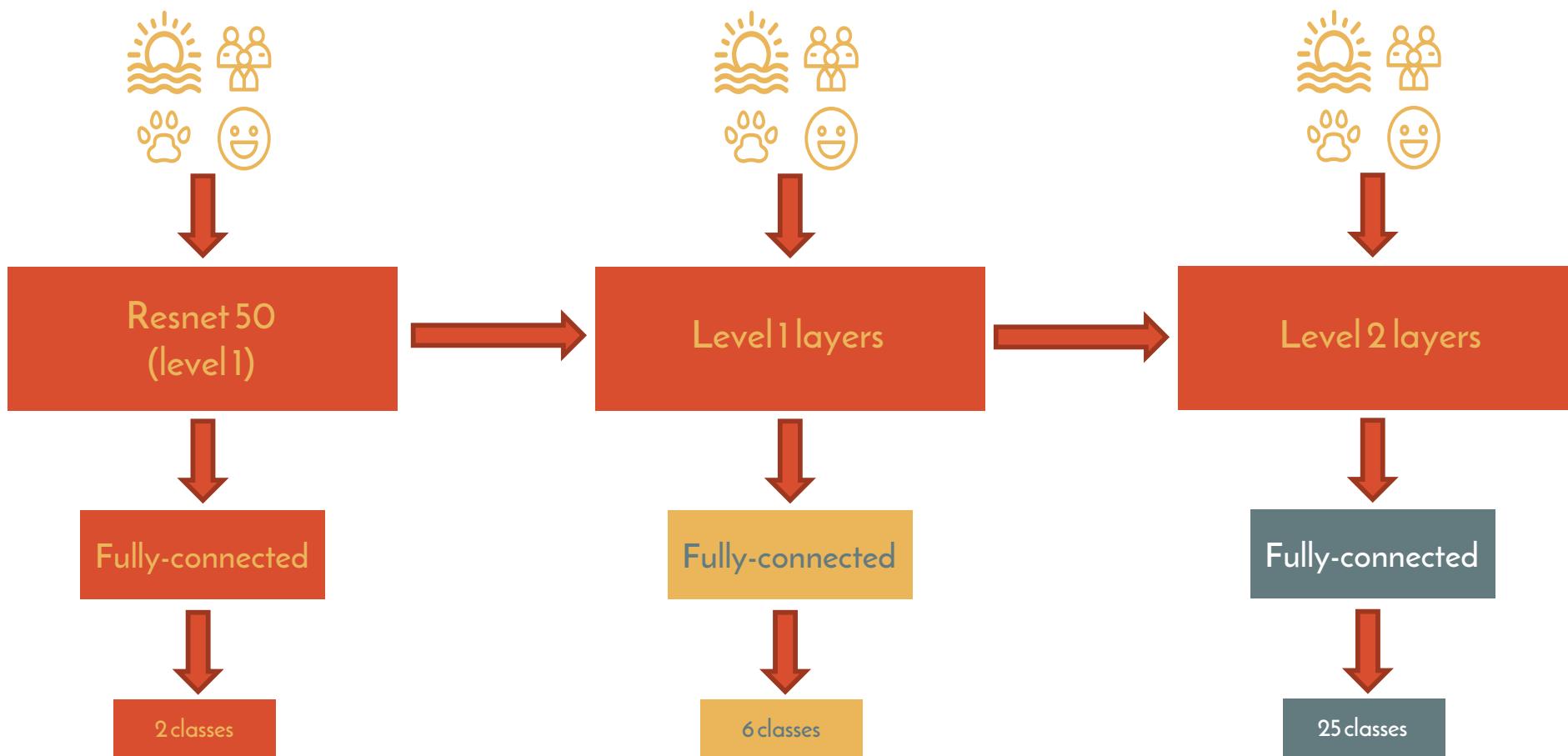
02



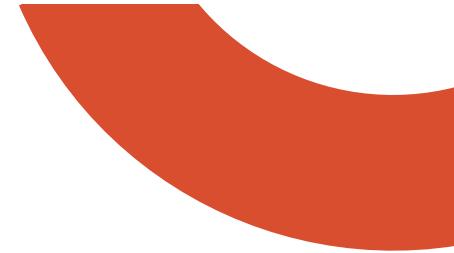
Curriculum Learning

- Series of models
- Sequentially learn nuances

CURRICULUM LEARNING



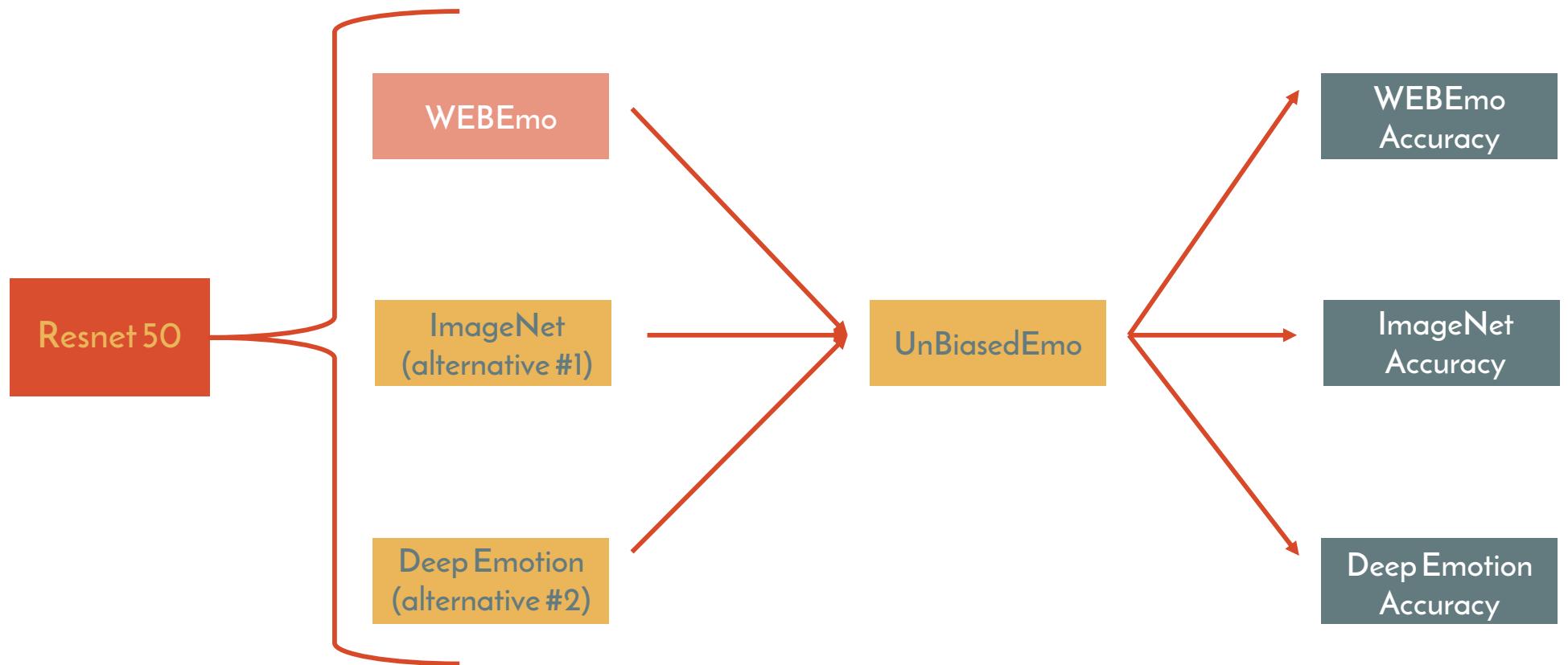
RESEARCH QUESTION



How does a curriculum-based WEBEmo model compare to current alternatives?



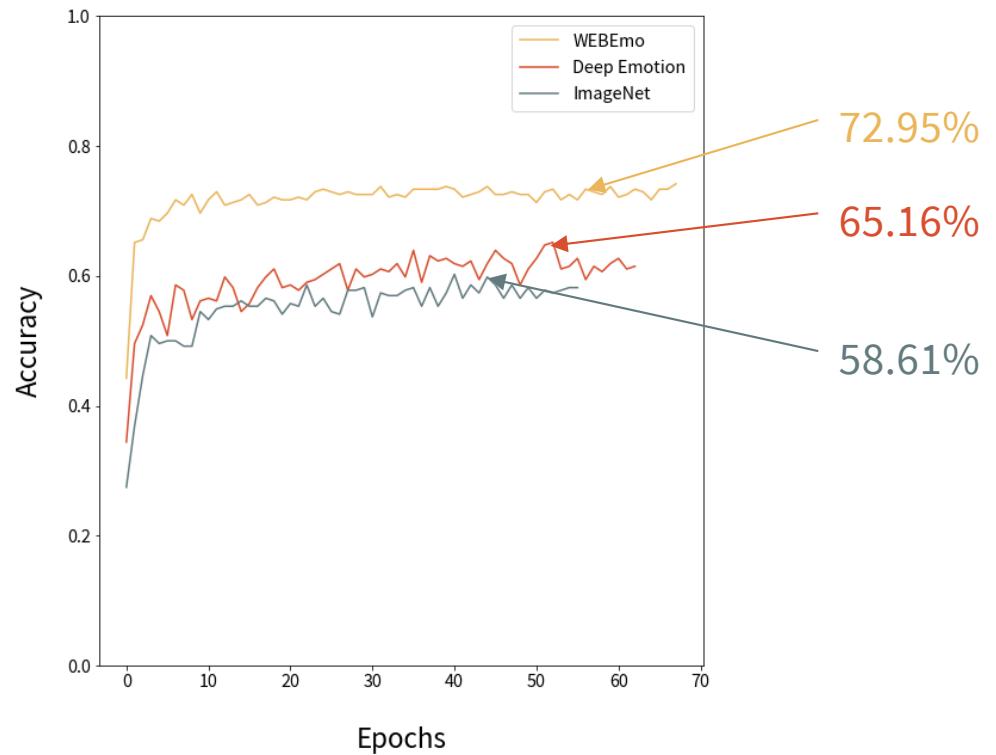
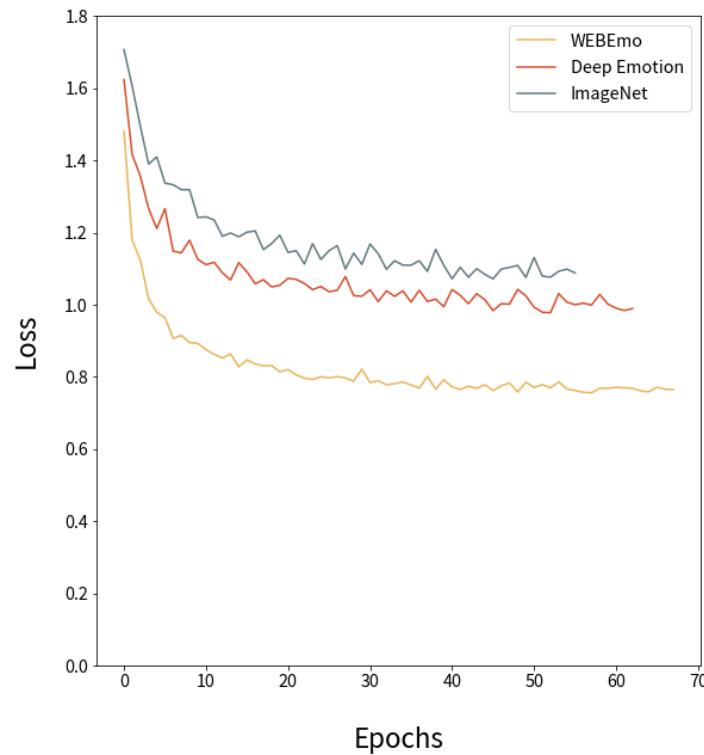
EXPERIMENT



TRAINING METRICS

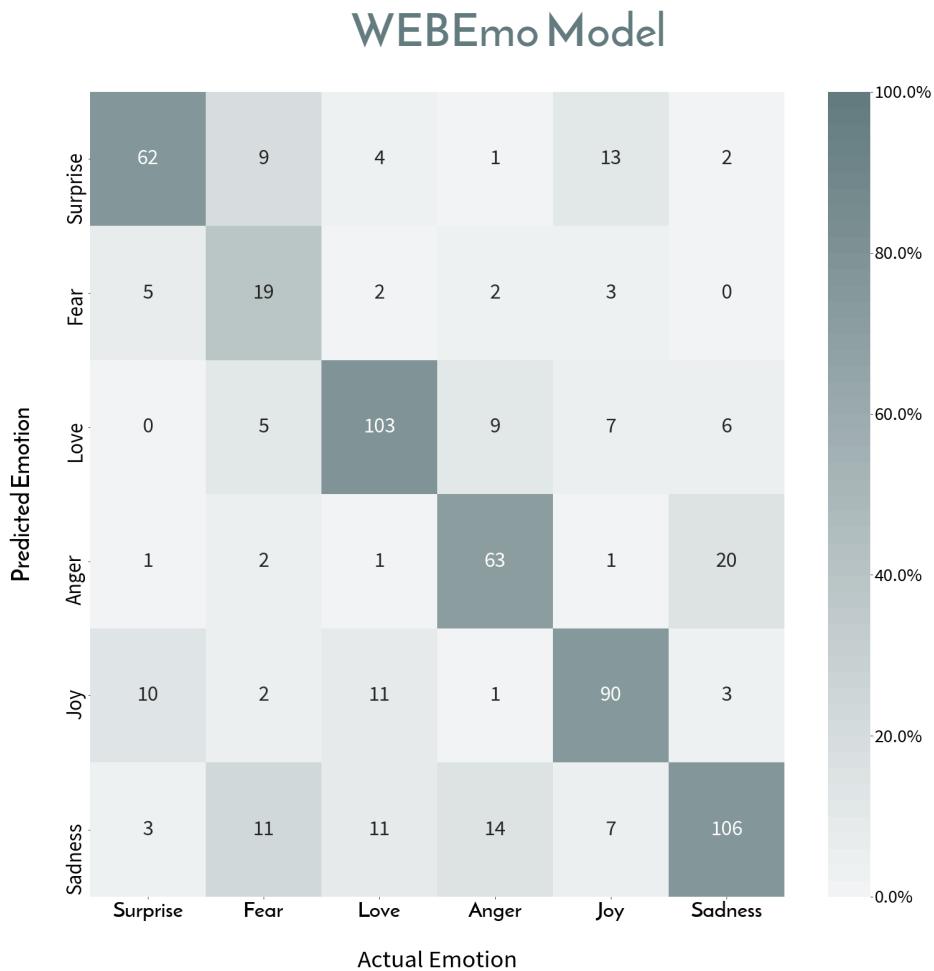


Validation Losses & Accuracies Across Models



RESULTS

- Test accuracies:
 - WEBEmo – 72.74%
 - Deep Emotion - 66.50%
 - ImageNet – 59.61%



TAKEAWAYS

- In this experiment, results favor the curriculum-based WEBEmo trained model for generalizability
- Deserves consideration for transfer learning

FUTURE WORK

- Exploration of other architectures
- Alternative feature extraction strategies
 - Specific low, mid, and high-level features of images

THANKS

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Github: <https://github.com/rossbj92>

Linkedin: <https://www.linkedin.com/in/bryan-ross-07871452>

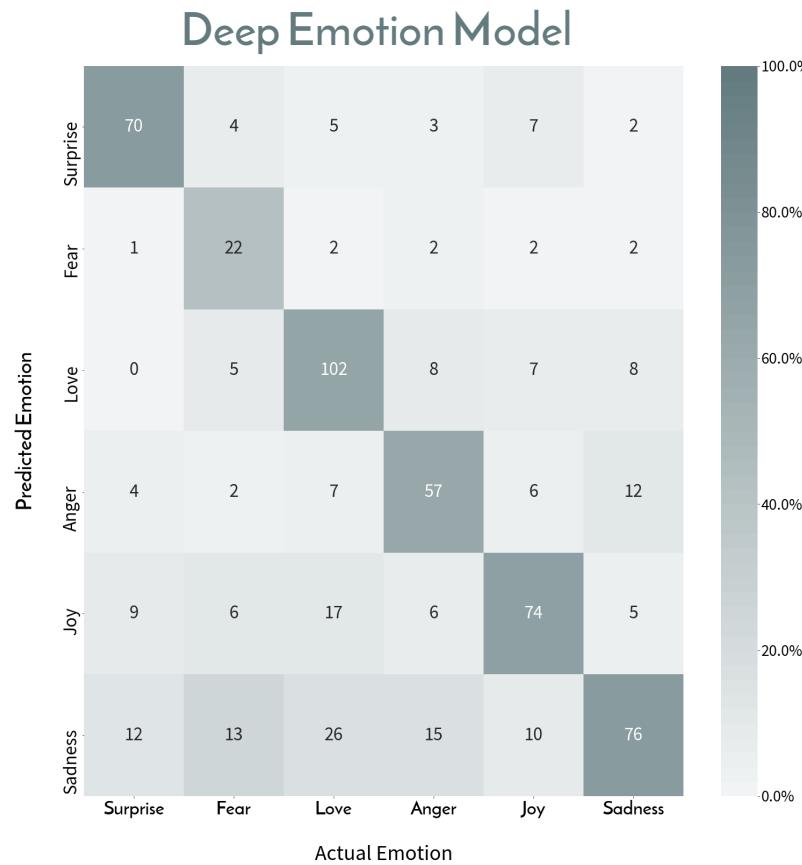
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References:

Kurdi, B., Lozano, S., & Banaji, M. R. (2016). Introducing the Open Affective Standardized Image Set (OASIS). *Behavior Research Methods*, 49(2), 457–470. doi:10.3758/s13428-016-0715-3

APPENDIX

RESULTS CONT.



RESULTS CONT.

