

Team A.W.P.

A Waldo Predictor



Project Proposal

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CSC 466: Knowledge Discovery from Data

Pitch

Our team would like to develop a ML model to find where Waldo is in certain images. Waldo looks different on varying images so it is not as simple as running a pixel by pixel comparison. We hope that through training a model with various snips of “Waldo” and “Not Waldo” our model will be able to learn who Waldo is and figure out where potential Waldos are located on a particular image.

Specific Aims

- Given an image of a person or object, can we identify if it is Waldo?
- Given an image of multiple people/objects, can we identify if Waldo is in the image and can we detect false-positives?
- Given a full image, can we identify Waldo’s locations if he exists?
- How does our model extract features of Waldo to find where he is located on the images?
- How well does our model work when images are augmented (rotated, color filter, etc.)?

Timeline

Week 4	Determine and gather training/testing dataset
Week 5	Format/clean images
Week 6	Find and develop a model for image detection
Week 7	Continue developing model
Week 8	Training
Week 9	Testing/validation
Week 10	More testing/validation
Finals	Final presentation on research and findings

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Team Outline

- Daniel Yim (Image Processing Engineer)
 - Handle training and validation of our image detection model
 - Process, formalize, clean and augment training data set.
- Jonathan Tang (Machine Learning Engineer)
 - Determine and develop a model for this research topic
 - Calculate and observe accuracy of model for training and validation

Final Deliverable

Powerpoint

- Section 1
 - Why we picked our model for image detection.
 - What are the benefits of this model?
 - Why it works best for our dataset.
- Section 2:
 - How we can train our model using our Where's Waldo dataset.
 - How are images formatted and represented when it's being input into our ML model?
- Section 3:
 - How does our model actually work?
 - Go more in-depth here (feature extraction)
- Section 4: Training and validation.
 - What steps did we take for trial-and-error?
 - Can we detect false-positives?
 - What's our accuracy rate of detecting Waldo?
- Section 5: Conclusion and findings
 - What we learned
 - What we would do better next time

Additional Notes

- Testing Data Set: <https://wallpaperaccess.com/wheres-waldo>
- Training Data Set: <https://www.kaggle.com/residentmario/wheres-waldo>