



# MOSQUITO DETECTION

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- Mosquitoes are the deadliest animals known to humankind
- They kill up to one million humans each year
- Spread diseases like malaria, zika, dengue
- Mosquitoes provide no benefits to the ecosystems they inhabit
- Have little to no predators
- With global warming increasing, mosquitoes are poised to be exposed to half of the world's population

# PROBLEM STATEMENT

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- Detect and classify mosquitoes from images
  - Distinguish between mosquitoes and other insects
  - Identify mosquitoes in real time
- Use cases
  - Discover whether mosquitoes are present at any given location
  - First step in getting rid of mosquitoes is knowing where they are
  - Useful for military bases, luxury hotels, commercial offices



## DATASET

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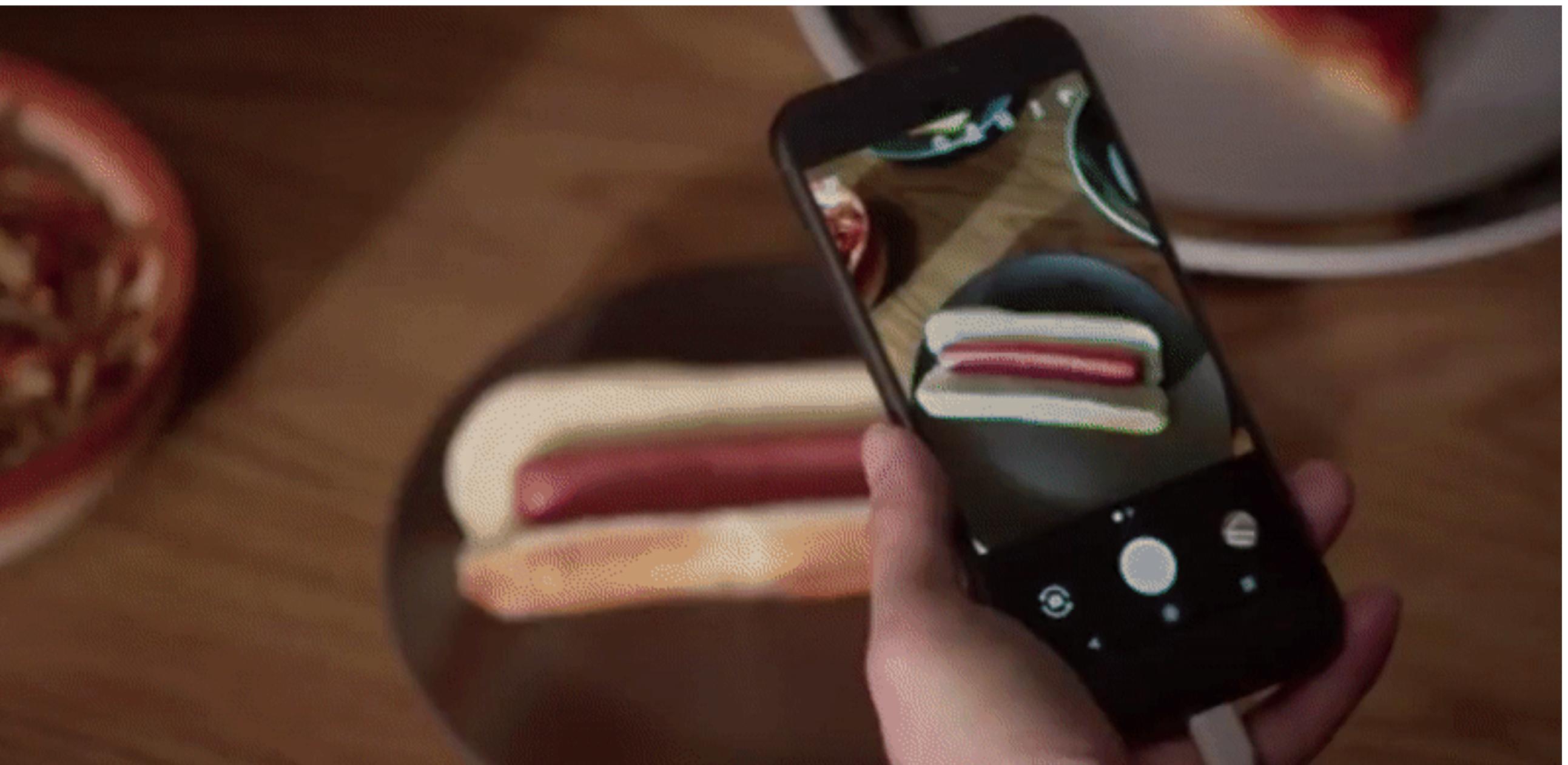
- Gathered image datasets of mosquitoes and other insects
- Bees, wasps, moths, fruit flies, ants
- 1200 images total of which 500 were mosquitoes



# PREPROCESSING

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- Transformed images to matrices
  
- Labelled Data
  - Mosquito
  - Not mosquito
  
- Data augmentation
  
- Transfer learning

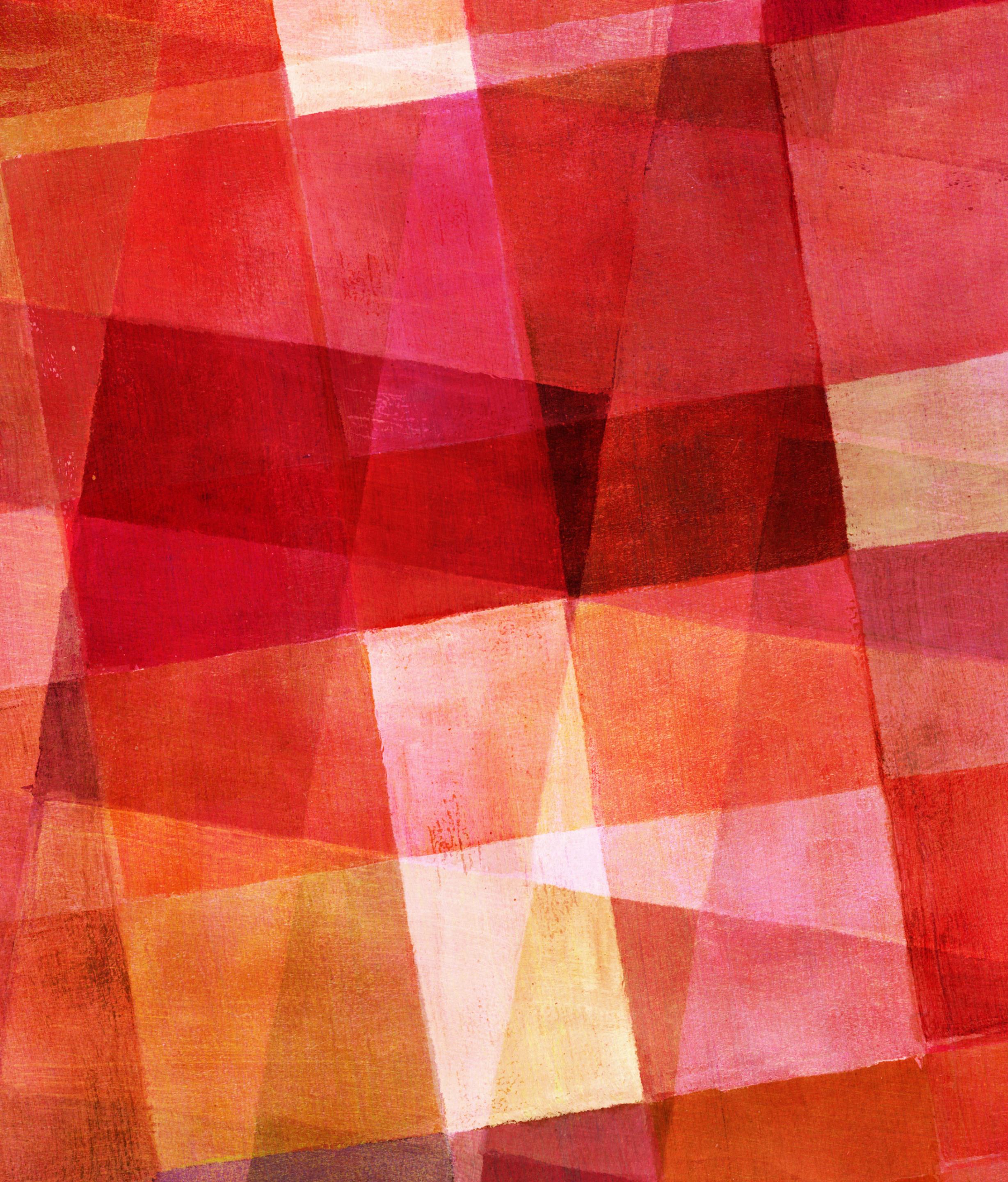


# MODELLING

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- Convolutional Neural Network
- Transfer learning with EfficientNet
  
- Best model results
  - Validation accuracy of 0.85
  - Stand alone CNN had validation accuracy of 0.67





## CONCLUSION AND NEXT STEPS

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- Scores were a lot better than I expected due to small dataset and low image quality.
- Get more metric scores
- Do more model fine tuning
- Write script to analyze video frames