

# Artistic Atlas Adventures

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CNN Based Image Classification w/  
LangChain Script Generation



## Team Members

- Ketan Parekh
- Fredy Aguirre
- Brian Hansen-Turton
  - Alan Hunt

# Concept and Motivation



## AI Disrupting Filmmaking

- **Artistic Atlas Adventures:** AI transforms images into movie synopses.
- Shifts AI from **analysis** to **content creation**.
- Builds on our **IMDb Score Predictor** to complete the storytelling loop.
- AI is no longer just a tool—it's a **co-creator** in filmmaking.

# Inspiration and Vision

- Inspired by **Fredy's travels**—capturing landscapes, imagining stories.
- **What if AI could turn an image into a movie idea?**
- AI + IMDb Score Predictor = **Data-driven creativity.**
- AI is **enhancing**, not replacing, human storytelling.

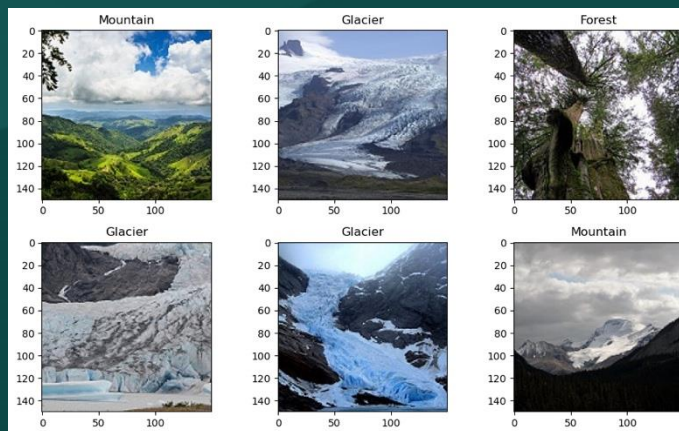
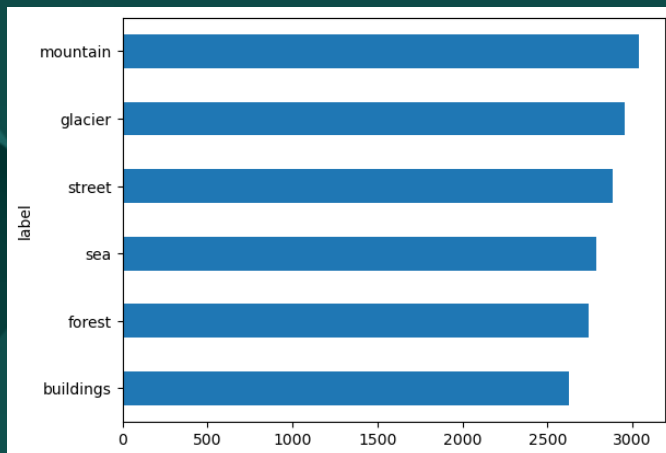


Checking for imbalanced data

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{'(150, 150)': 16979,  
'(150, 124)': 1,  
'(150, 113)': 7,  
'(150, 108)': 2,  
'(150, 133)': 1,  
'(150, 115)': 1,  
'(150, 135)': 3,  
'(150, 141)': 2,  
'(150, 136)': 2,  
'(150, 110)': 2,  
'(150, 105)': 1,  
'(150, 111)': 3,  
'(150, 120)': 1,  
'(150, 149)': 2,  
'(150, 143)': 2,  
'(150, 146)': 2,  
'(150, 134)': 2,  
'(150, 142)': 2,  
'(150, 123)': 2,
```

Choosing a target size for resizing

Image augmentation



# Data Collection, Cleanup, Exploration, and Image Augmentation



# Tools and Technologies

## Programming Language: Python

- Widely used for various applications

## Deep Learning Frameworks

- TensorFlow
- PyTorch

## UI Framework: Gradio

- Used for building user interfaces

## Transformer Model: Gemini via LangChain

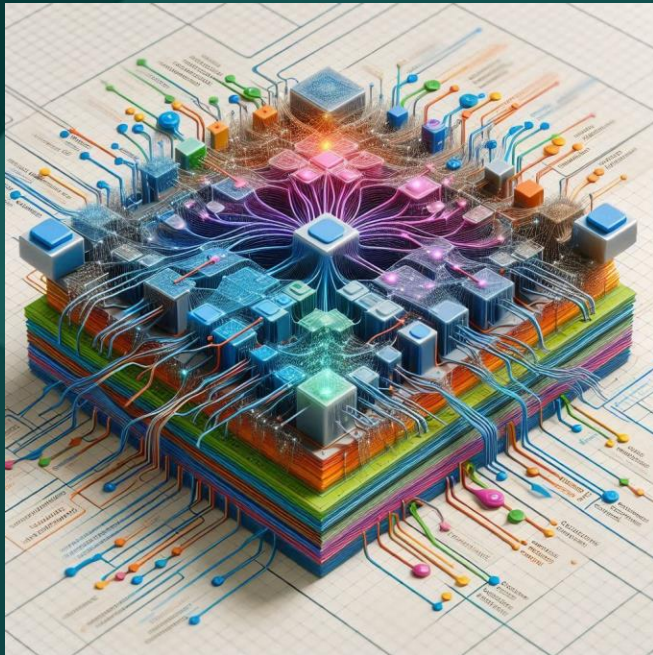
- Advanced model for language processing

## Deployment

- Details not specified



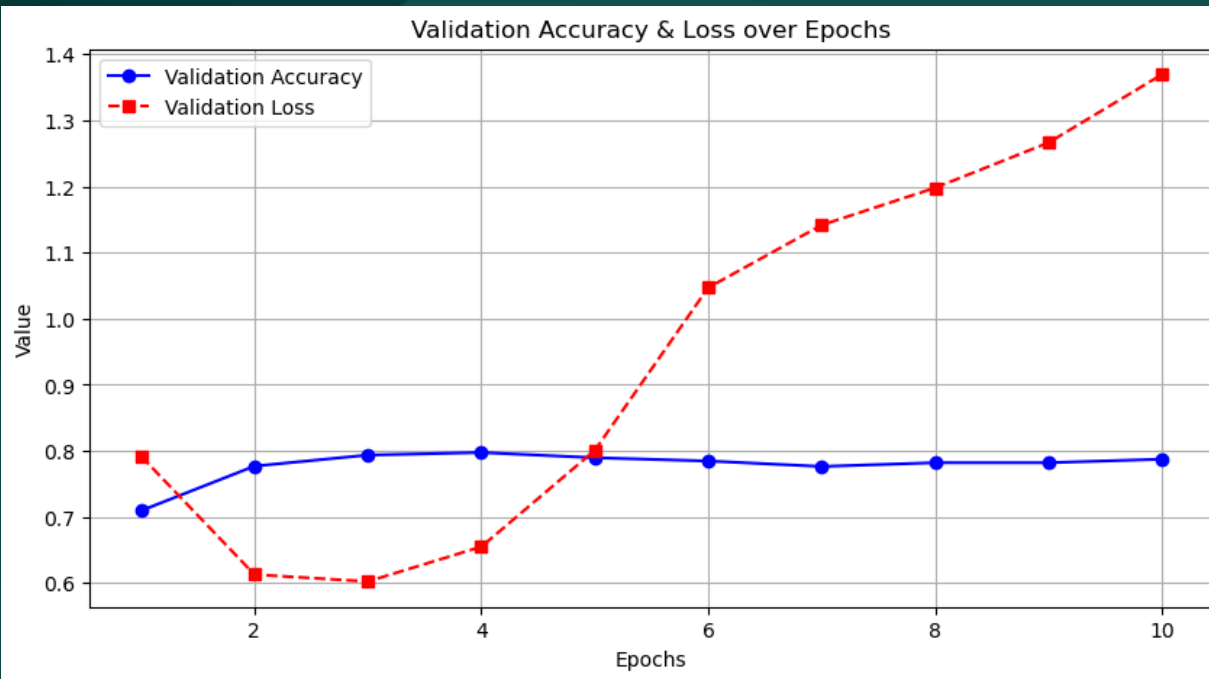
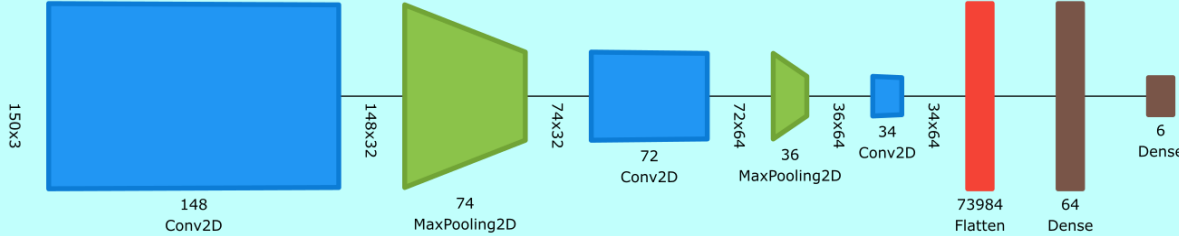
# Project Deliverables - CNN



## CNN Classification

- **Classify images** into categories: *mountain, glacier, street, sea, forest, building*
- **Utilize Convolutional Neural Network (CNN)** for image classification
- **Fine-tune model** with keras hyperparameter tuner
- **Develop a user-friendly UI** for image upload

# Initial CNN Model



## Model Target:

- Image classification

## Encoder:

- OneHotEncoder

## Split:

- Train/Test: 0.8/0.2
  - Train/Validation: 0.8/0.2

## Activation functions:

- Conv2D: RELU
- Output: Softmax

## Optimizer:

- Adam

# Hyperparameter Tuning - I

## Tuner

- RandomSearch

## Parameters:

- # of kernels (3, 4, 5)
- # of filters 32-256 with step of 32
- Learning rate (0.01, 0.001, 0.0001)

## Split:

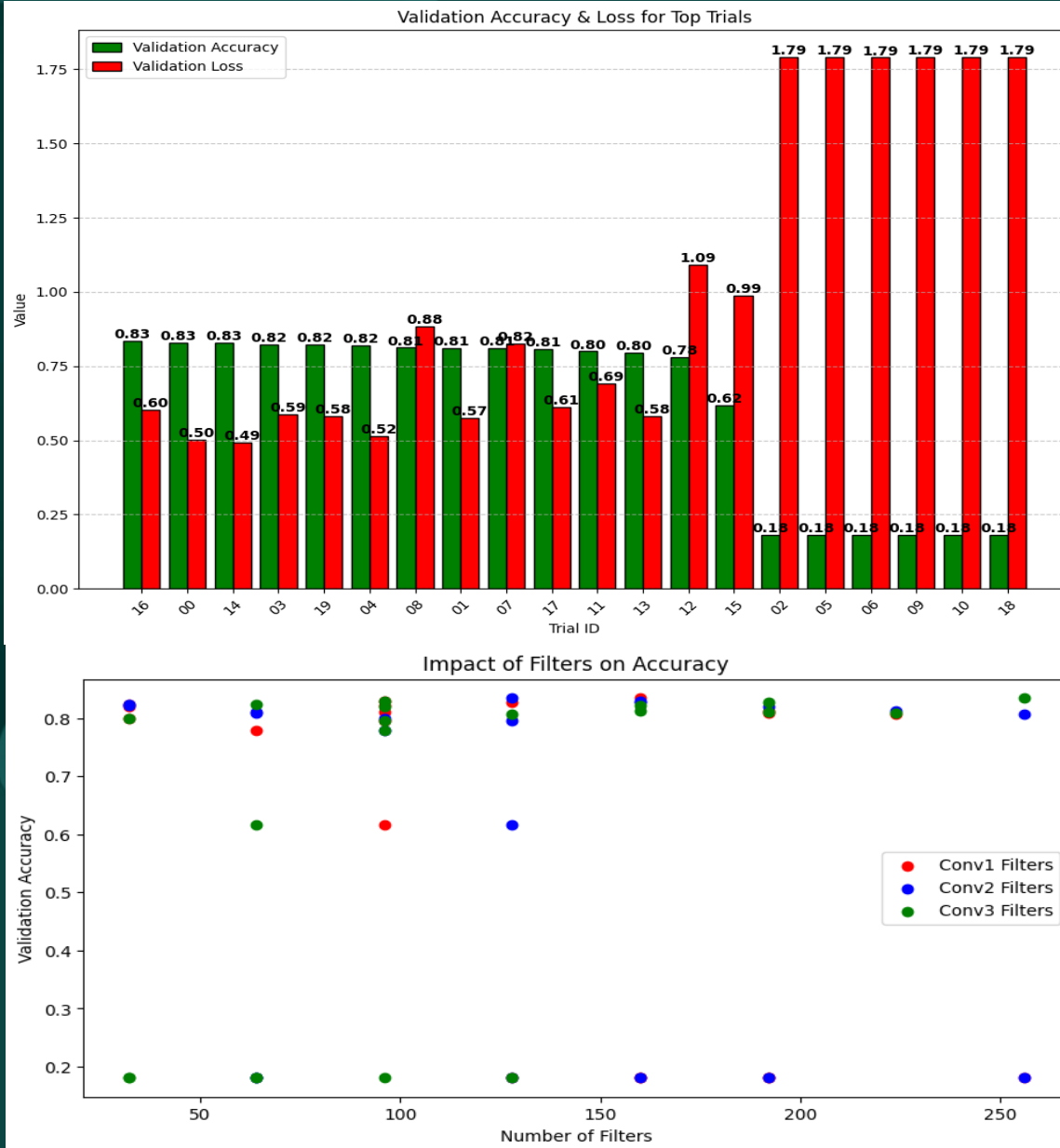
- Train/Test: 0.8/0.2
  - Train/Validation: 0.8/0.2

## Activation functions:

- Conv2D: RELU
- Output: Softmax

## Optimizer:

- Adam





# Hyperparameter Tuning - II

## Tuner's Best Model

- Epochs: 20
- Test accuracy: 0.8180
- Test loss: 0.7389

## Optimized Model:

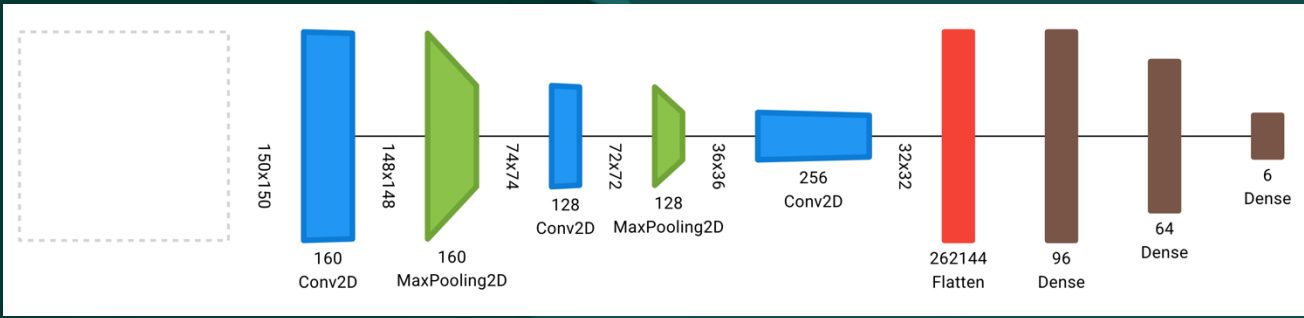
- Epochs: 7
- Test accuracy: 0.8303
- Test loss: 0.5872

## Activation functions:

- Conv2D: RELU
- Output: Softmax

## Optimizer:

- Adam



Total params: **78,542,708** (299.62 MB)

Trainable params: **26,180,902** (99.87 MB)

Non-trainable params: **0** (0.00 B)

Optimizer params: **52,361,806** (199.74 MB)

# Resource Limitations



## Hyperparameter Tuning - III

### Tuner

- Hyperband

### Parameters:

- # of kernels (3, 4, 5)
- # of filters 32-256 with step of 32
- Learning rate (0.01, 0.001, 0.0001)
- Activation functions (RELU, TANH, LRELU, SELU)

### Split:

- Train/Test: 0.8/0.2
  - o Train/Validation: 0.8/0.2

### Activation functions:

- Conv2D: RELU
- Output: Softmax

# Project Deliverables



## CNN, Gemini, OpenAI & Gradio Integration

- AAA CNN's image classification
- Leverage Google Gemini's AI to analyze a classified image and generate a compelling movie synopsis.
- Used OpenAI's image generation model to transform a movie synopsis into a vivid, AI-generated visual representation
- Integrated Gradio's user-friendly GUI to seamlessly connect all the components.
- Bridge AI analysis with creative storytelling

# Lessons Learned



Computational Demand of CNNs  
Local vs. google colab



Keras tuners



We should've invested in a plumbing career.

# Next Steps: Future Research and Development

- Utilize multi-classification to identify multiple classes in each image.
  - Location and history identification.
- Use AI to create the entire script of the movie.



GitHub



Future Endeavors



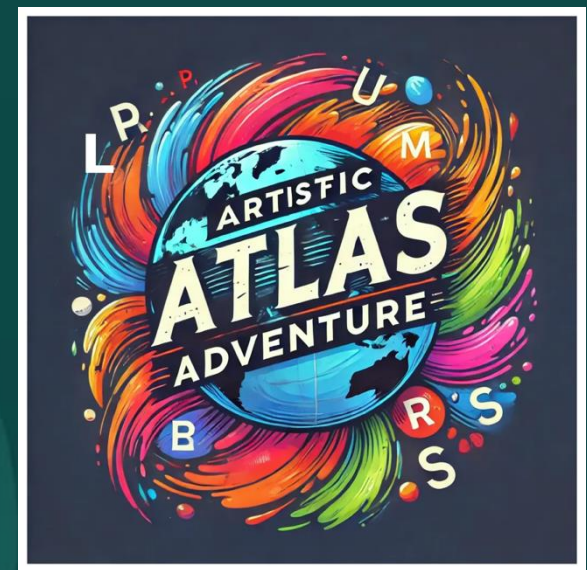
# Acknowledgments

Suzanna Ayash


Jimmy Tran

University of Pennsylvania  
Team



# The End





# Movie Script & Poster Generator 🎬

Upload an Image 

 Paste or Upload Image

  
  
Drop Image Here  
- or -  
Click to Upload



 Process the image 

 Predicted Information

 Prediction Information

 Generated Movie Script

 Generated Movie Poster

 Movie Poster

