

EASTER EGG FINAL PRESENTATION

THE SNAKINATOR

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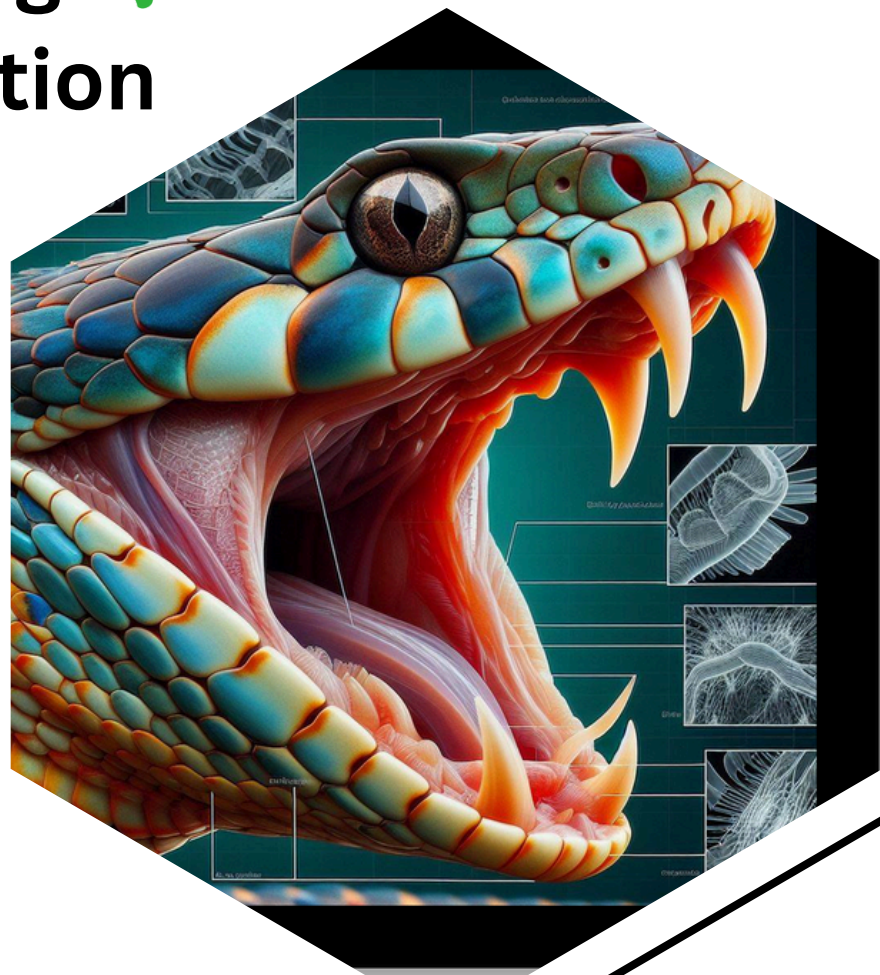
Khush Agarwal

64130500255

Why Snakinator?



**1. Snake or
Something 
Else? Detection**



2. 10 Species of Snake 



3. ≥ 30 Species 



**4. Connect webcam for
live inference in
webapp **



**5. Mobile 
application**



Features

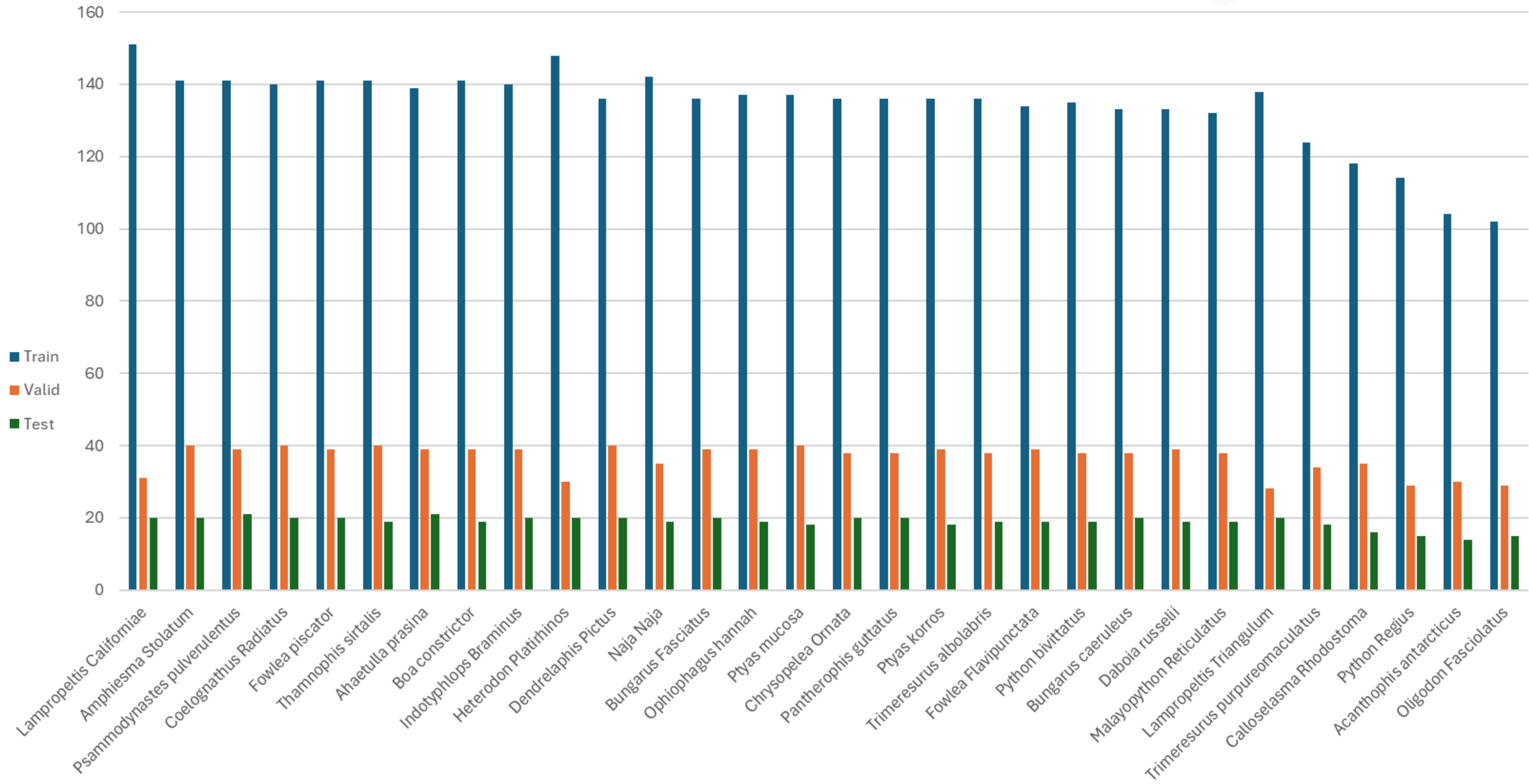
Most Common Snake Species (30)

- Lampropeltis Californiae
- Amphiesma Stolum
- Psammodynastes pulverulentus
- Coelognathus Radiatus
- Fowlea piscator
- Thamnophis sirtalis
- Ahaetulla prasina
- Boa constrictor
- Indotyphlops Bhaminus
- Heterodon Platirhinos
- Dendrelaphis Pictus
- Naja Naja
- Bungarus Fasciatus
- Ophiophagus hannah
- Ptyas mucosa
- Chrysopelea Ornata
- Pantherophis guttatus
- Ptyas korros
- Trimeresurus albolabris
- Fowlea Flavipunctata
- Python bivittatus
- Bungarus caeruleus
- Daboia russelii
- Malayopython Reticulatus
- Lampropeltis Triangulum
- Trimeresurus
purpureomaculatus
- Calloselasma Rhodostoma
- Python Regius
- Acanthophis antarcticus
- Oligodon Fasciolatus

Dataset Details:

- 5665 images
- 30 classes
- 70% Train, 20%
Valid, 10% Test
- 13671 images
after
augmentation

Dataset Individual Train, Test, Valid Split



Workflow

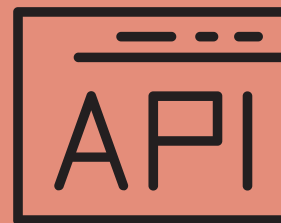


Species
Detection
Model

No species detected

Snake
Detection
Model

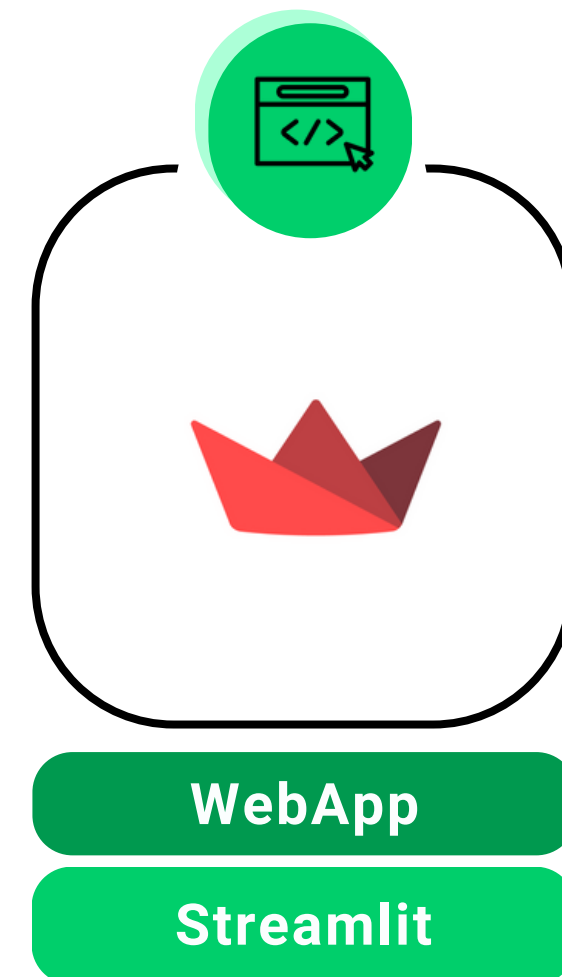
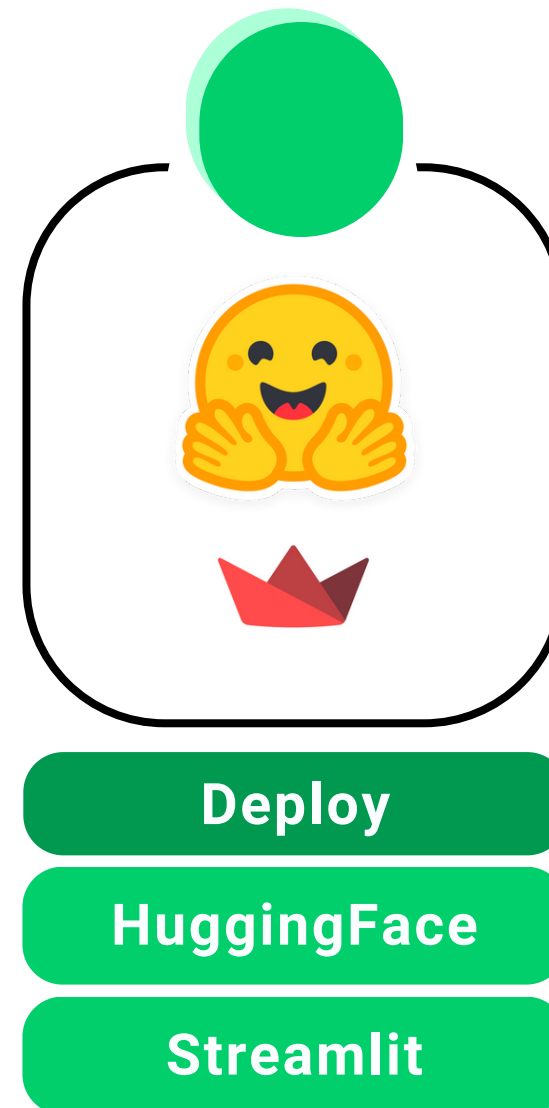
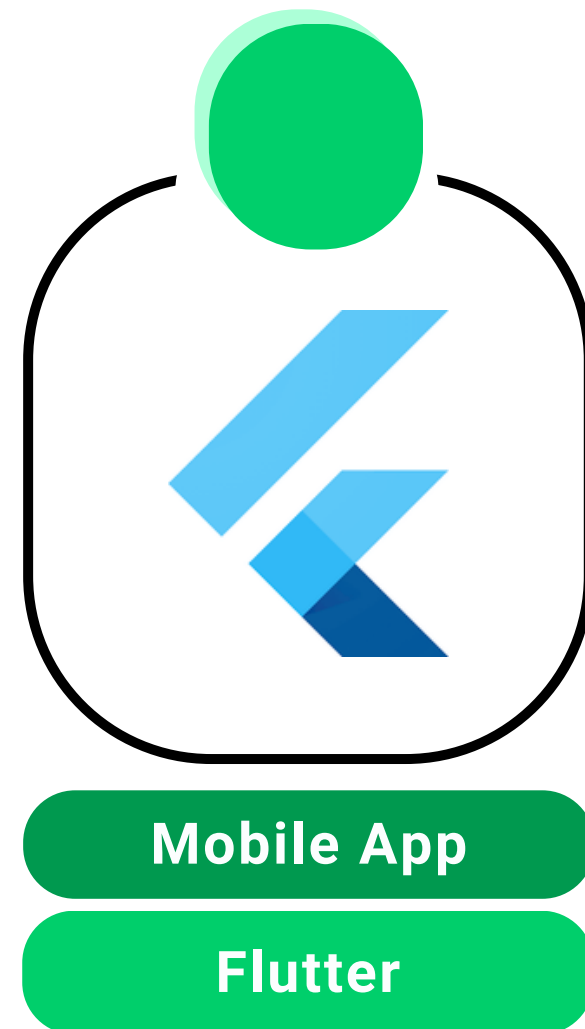
Species detected



WIKIPEDIA
The Free Encyclopedia

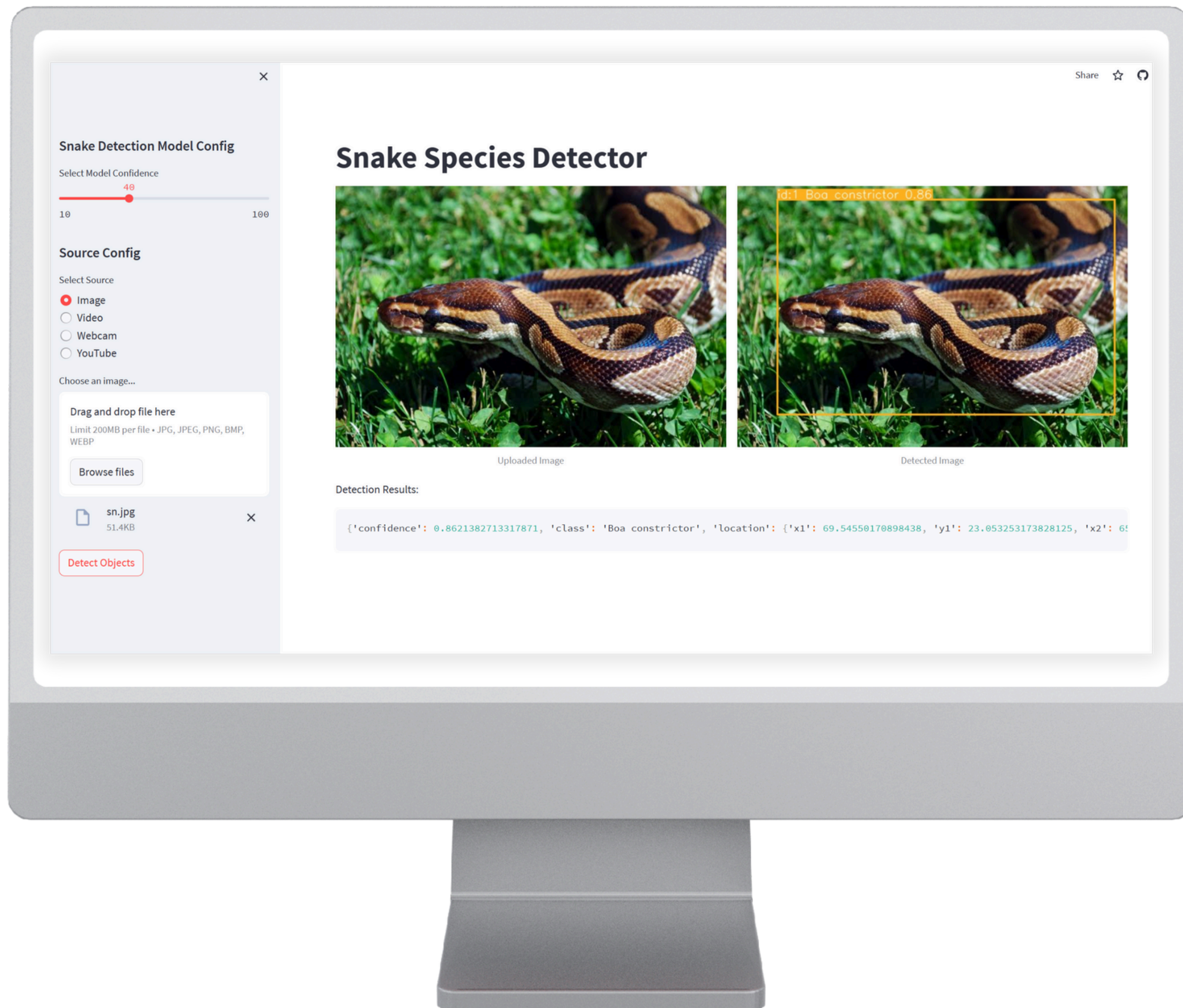


Stack

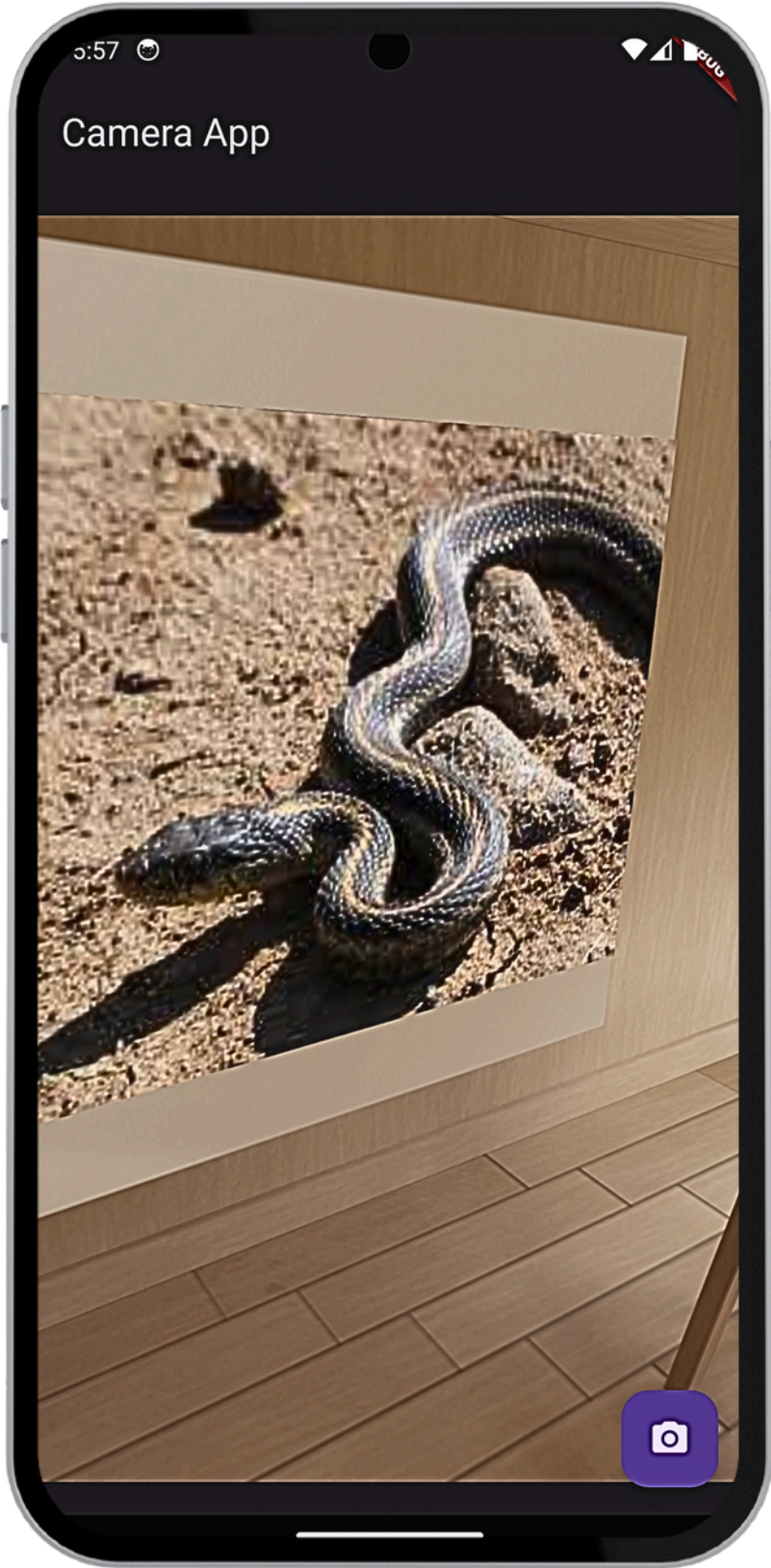


WebApp

Image
Video
Webcam
YouTube

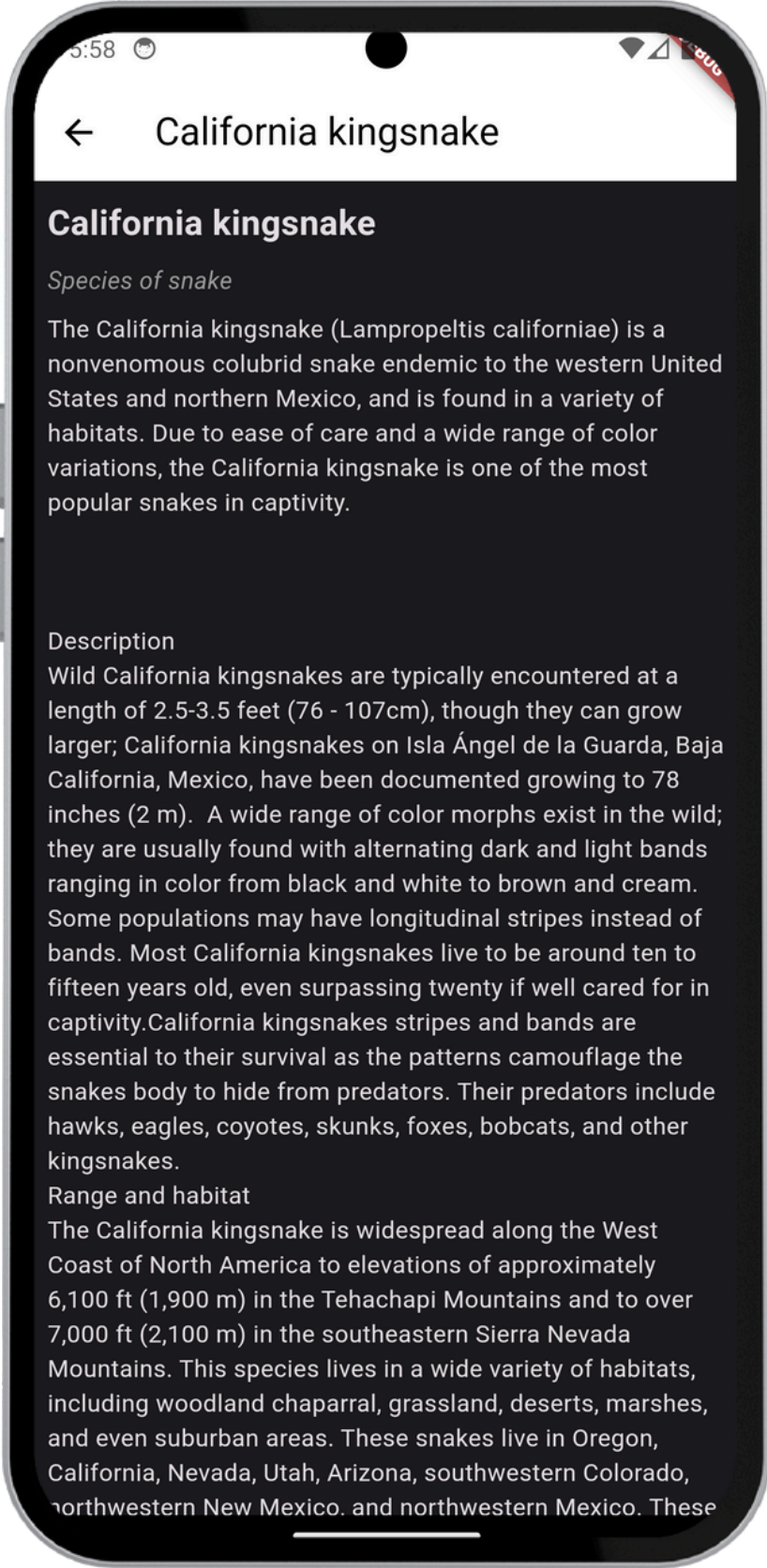
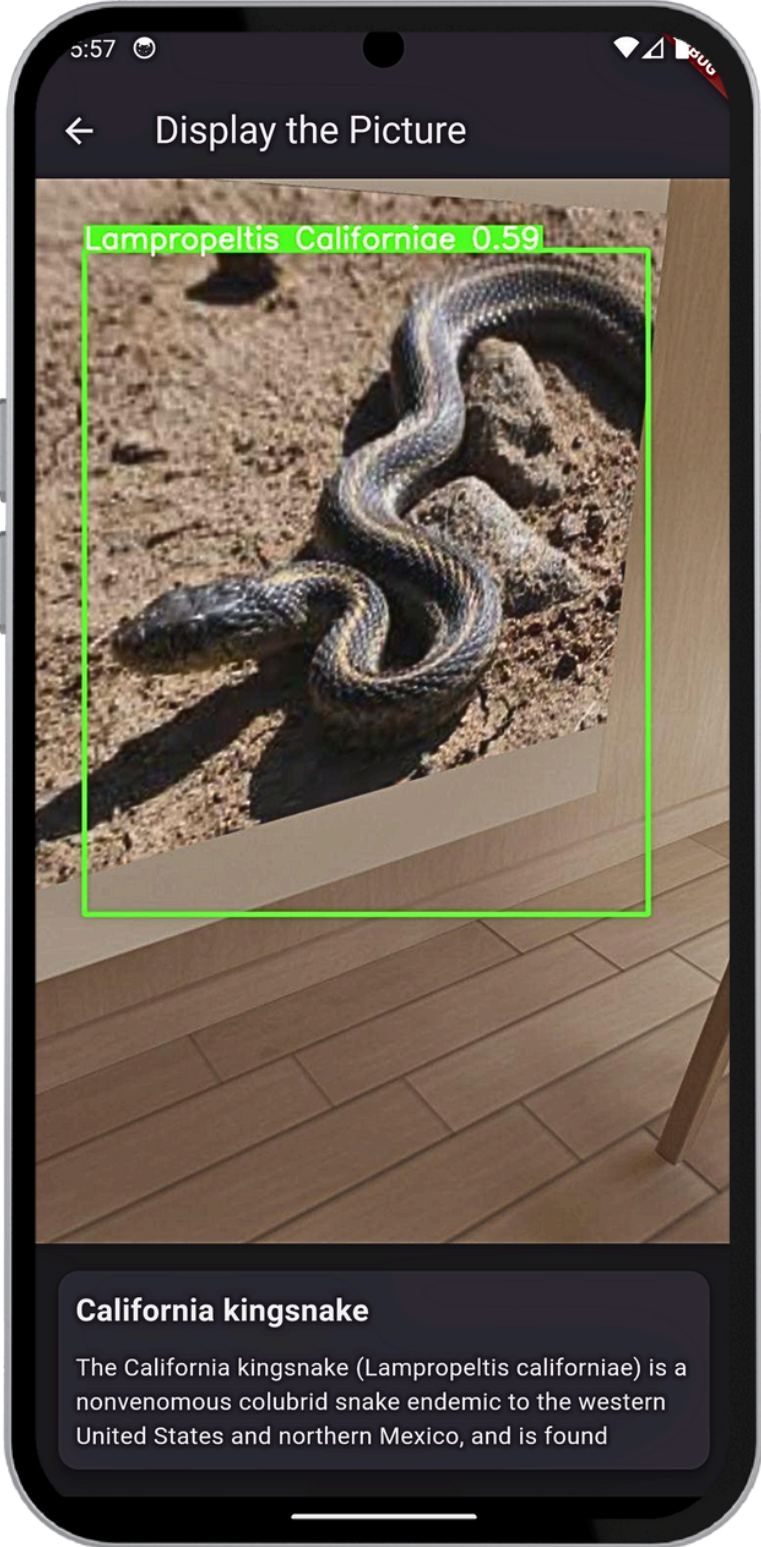


Mobile Application



Take a picture of snakes

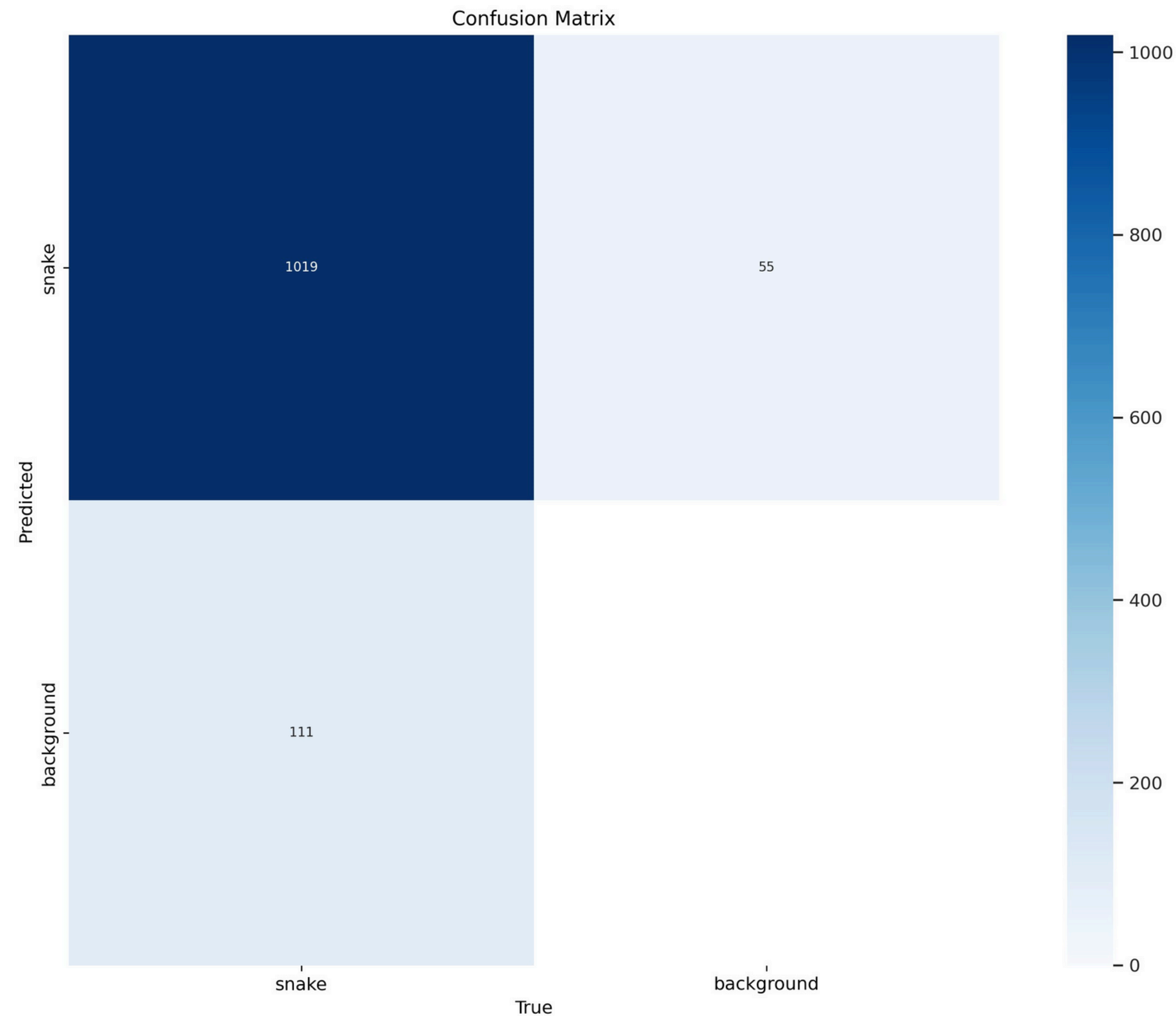
Show detection result



Fetch each species's data



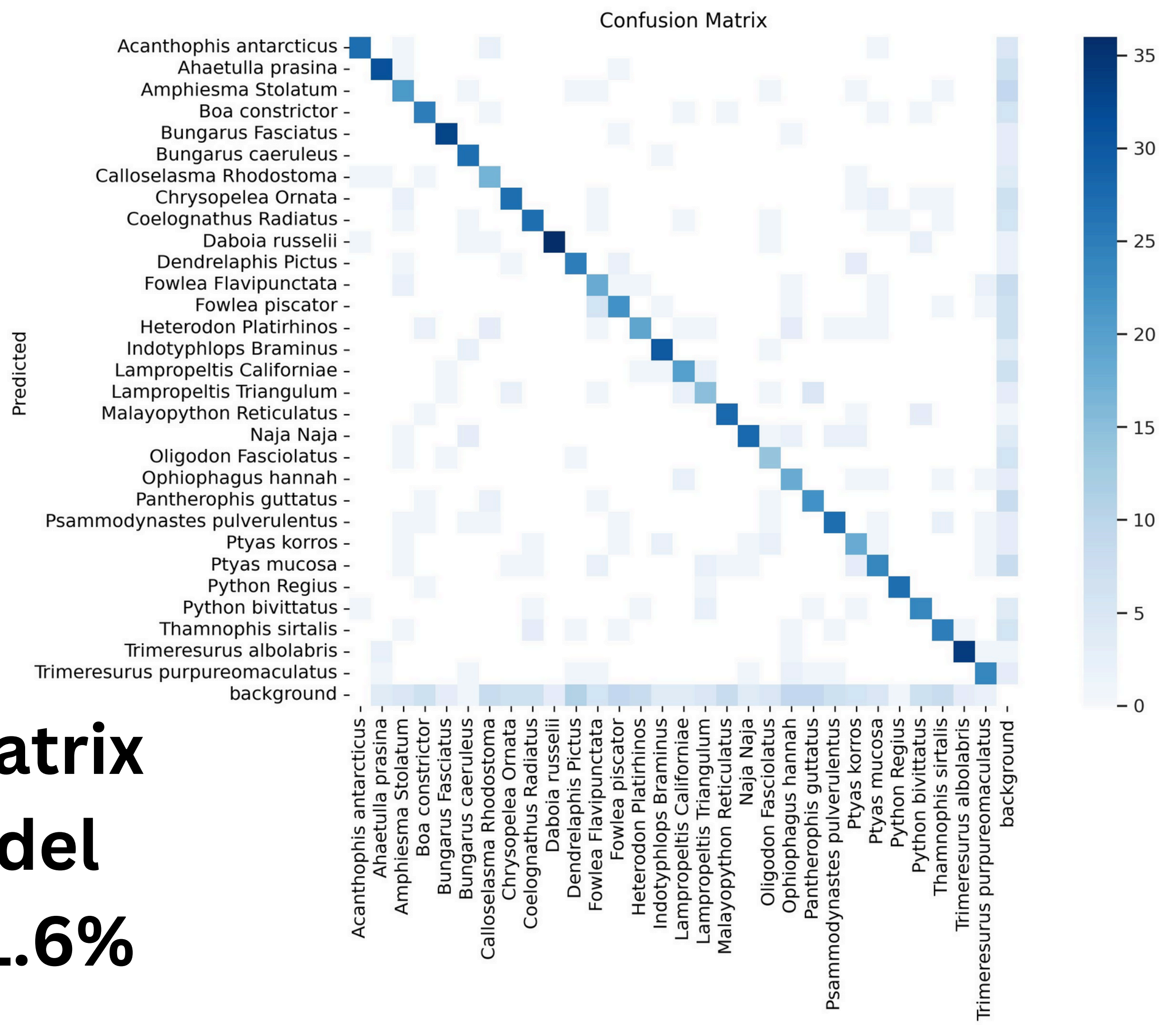
Confusion Matrix Snake Model: 92.5% Accuracy



Confusion Matrix

Species Model

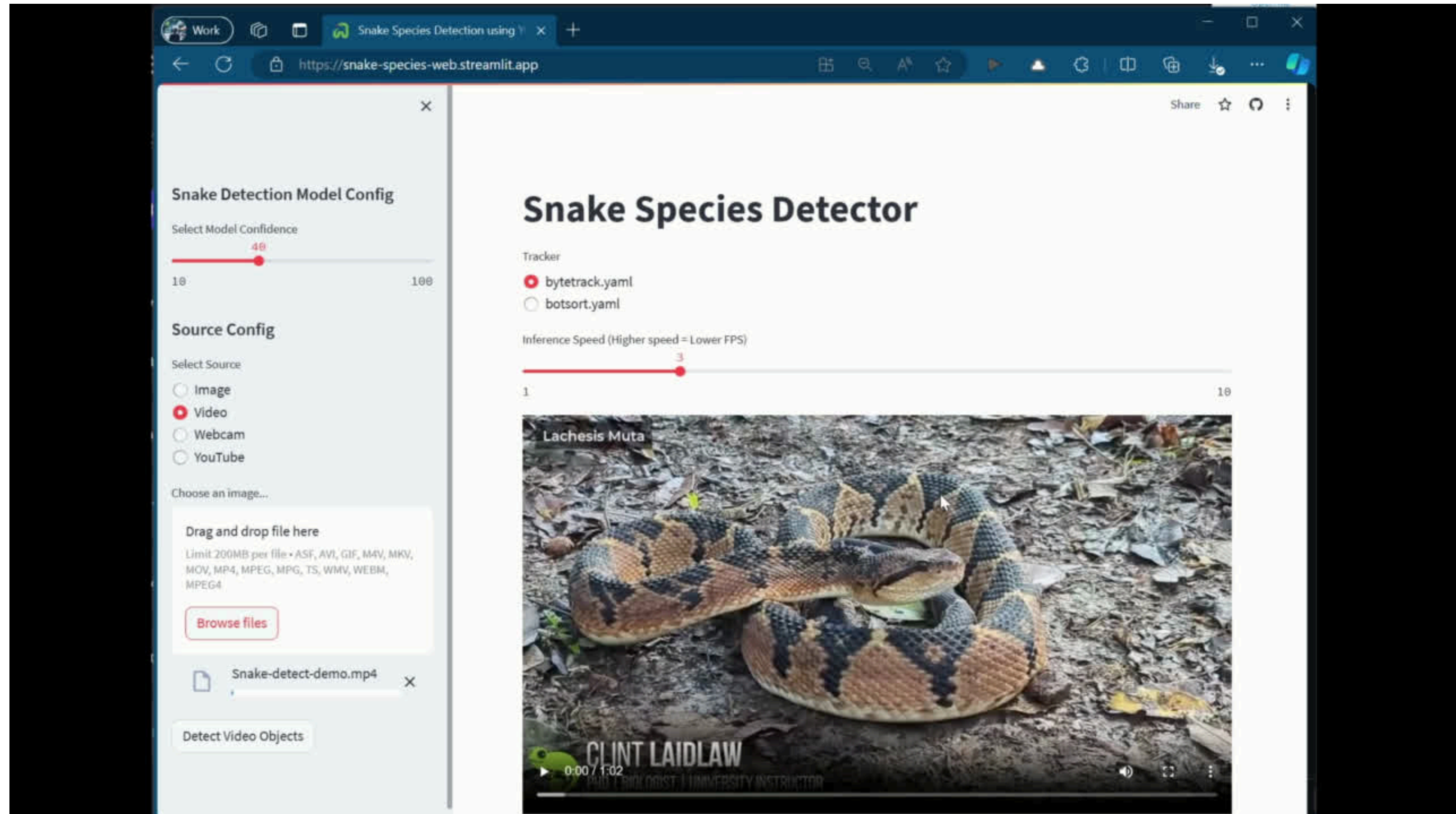
Accuracy: 71.6%



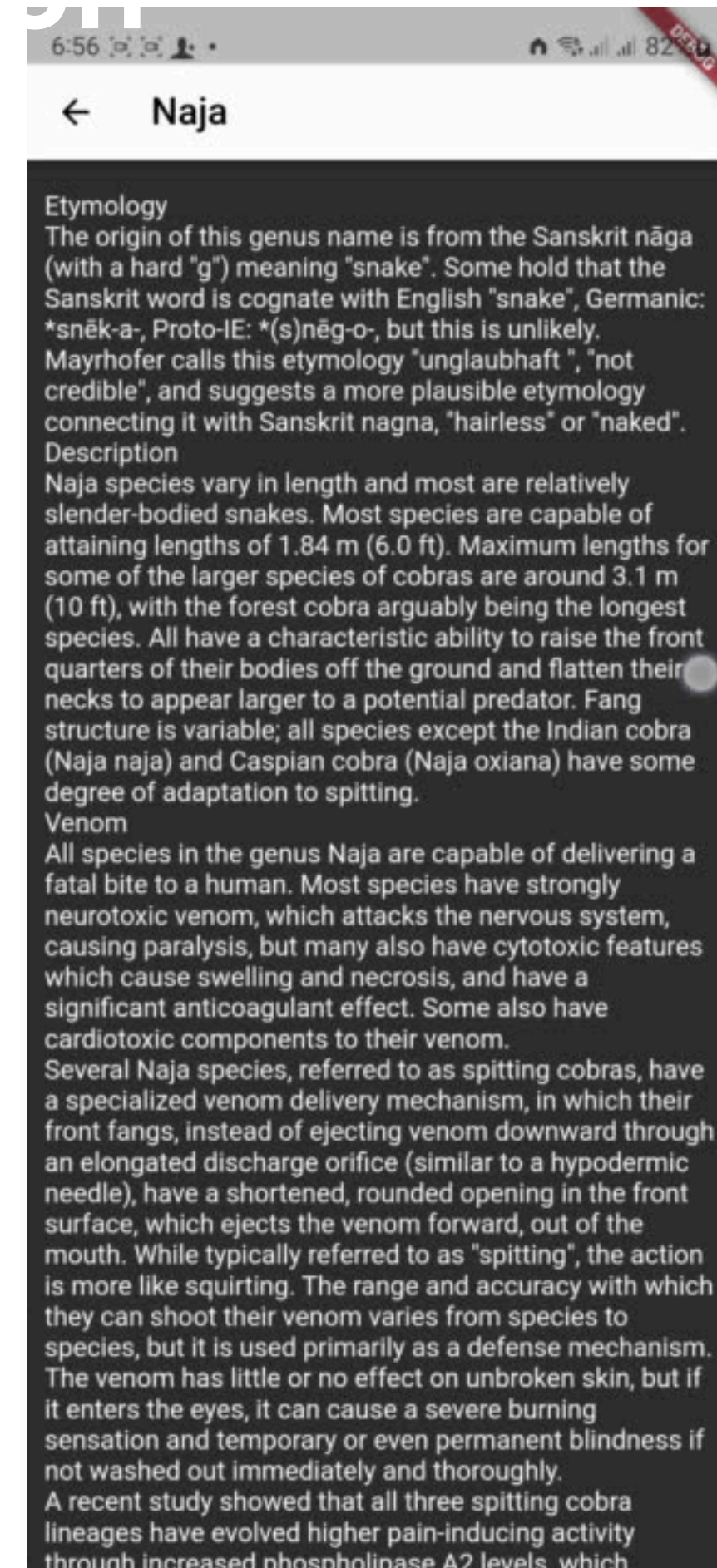
Why struggling?



WebApp Demo



Mobile App Demo



Source Code

- **Try it out at:** <https://snake-species-web.streamlit.app/>
- **Web App Code:** <https://github.com/khush2003/snake-species-detection-web>
- **Mobile App Code:** <https://github.com/savorypancakes/snakedetection>
- **Training Models and Dataset:** <https://github.com/khush2003/snake-model-storage>
- **API for image inference:** <https://khush2003-snake-deployment-docker.hf.space/docs>

References

- <https://pubmed.ncbi.nlm.nih.gov/20534600/#:~:text=Abstract,whose%20causes%200are%20often%20unclear.>
- app.roboflow.com
- <https://link.springer.com/article/10.1007/s11042-023-16773-0>
- https://docs.ultralytics.com/guides/hyperparameter-tuning/#best_hyperparametersyaml

