



Endangered Sea Animals



Voxel51 Hackathon Event

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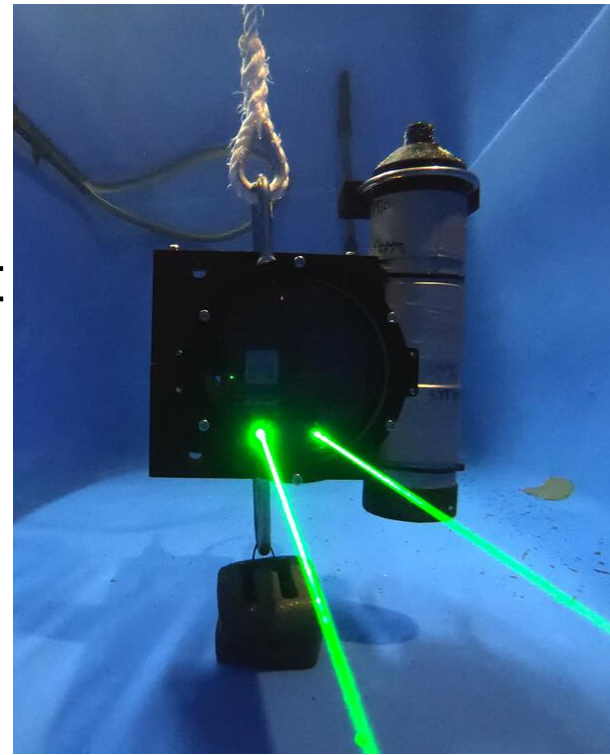
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Narrative

- Oceans comprise ~90% of the Earth's living space but it is said that we know less about our ocean floors than even the surface of our Moon. Endangered ocean animals are worthy of more study!
- Camera traps are essential tools in the protection of endangered animals allowing study of the animal, its behavior in the wild and frequency of appearance
- Underwater camera traps have improved to be energy-efficient, durable and hardware capable of storing days of photos
- We add ResNet image classification to underwater camera traps to allow for underwater camera traps to sustain longer in the wild before pickup.
- The nature of this environment means that it could be useful to save only photos motion captured of the target endangered animals.



ResNet15 with new Last Layer: Sea Animal specific

- For sake of simplicity, additional last layer for binary classification of endangered vs non-endangered sea animals
 - Endangered List: Puffer Fish, Manta Rays, Sea Urchins, Eels, Sea Otters



- Non-endangered animals: Tortoise, Jelly Fish, Dolphin, Sharks, Whales, Octopus, Nudibranchs, Corals, Crabs, Starfish, Lobster, Clams, Fish, Shrimp, Squid, Penguins, Seahorses, Seals

Hypothesis

- We will compare whether ResNet from scratch has worse overall performance than pre-trained ResNet with transfer learning training on ~10k sea animal images
- Transfer learning done by adding last layer after pre-trained ResNet