# iNaturalist Evaluation Metrics

I trained Hiera(T) on iNaturalist 2019 and iNaturalist 2021 (mini) to evaluate their performance. The purpose of this was to compare them to both the OpenCLIP implementation and the RAG datasets we built using WikiSpecies, iNaturalist, and Encyclopedia of Life (EOL).
We observed that we reached peak performance of Hiera(T) at an accuracy of 0.61 for iNAT-2021-mini (which matches the top visual transformer trained and evaluated on the dataset, and an accuracy of 0.69 for iNAT-2019. Both used same parameters.

Ryan Junejo

Created on September 5 | Last edited on September 5

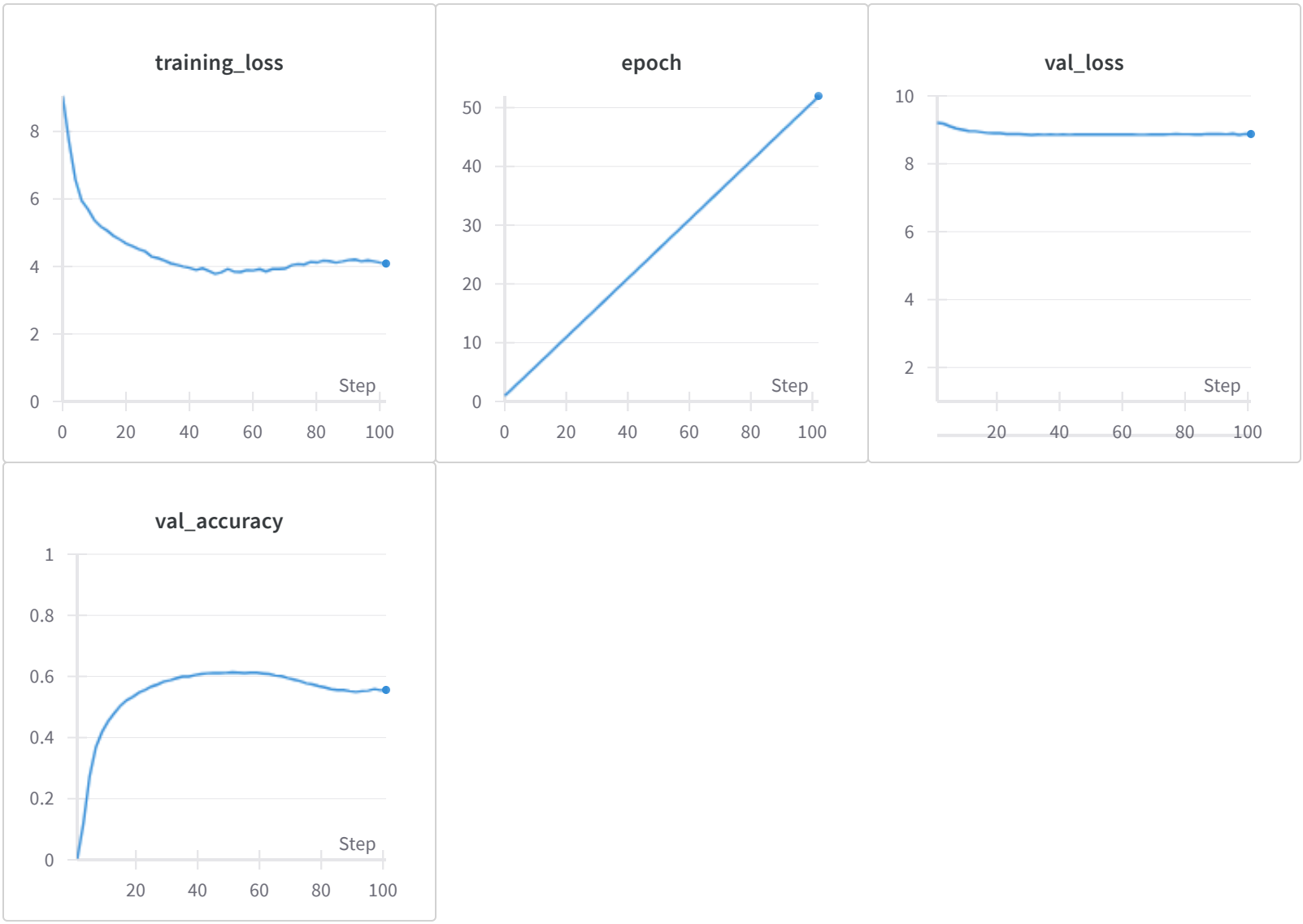
## iNaturalist 2021(mini) results

### Details

- Trained on a Batch Size of 512
- 500k images, 10 per species\class, resulting in 10,000 different classes
- Utilized a Nvidia a40, each epoch took ~30 minutes to train.
- The model was trained using the AdamW optimizer with momentum values $\beta1 = 0.9$ and $\beta2 = 0.999$, a weight decay of 0.05, and a learning rate of 2e-3 following a cosine decay schedule.
- Training involved 300 total epochs, with the first 5 epochs used for warmup.
- 9 Random Augmentations with a magnitude of 0.5 applied.

- Mixup and cutmix were used with values of 0.8 and 1.0, respectively, alongside label smoothing set to 0.1. A drop path rate of 0.1 and a layer-wise decay of 0.65 were also implemented.

## Graphs

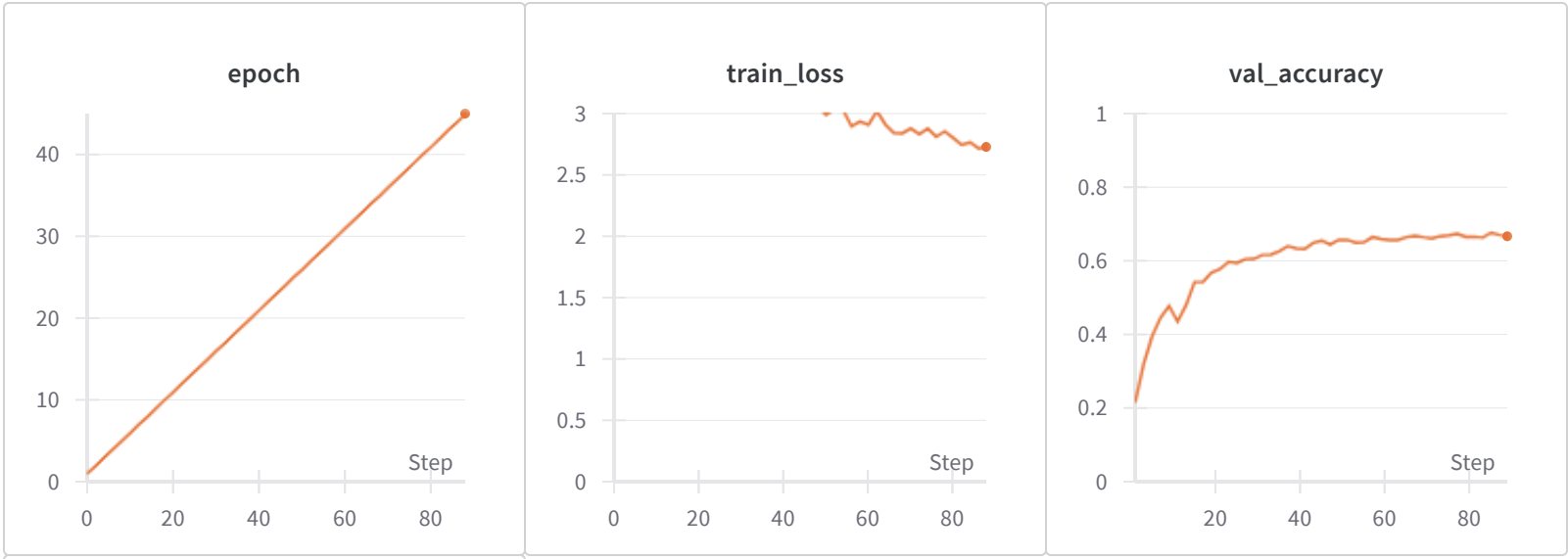


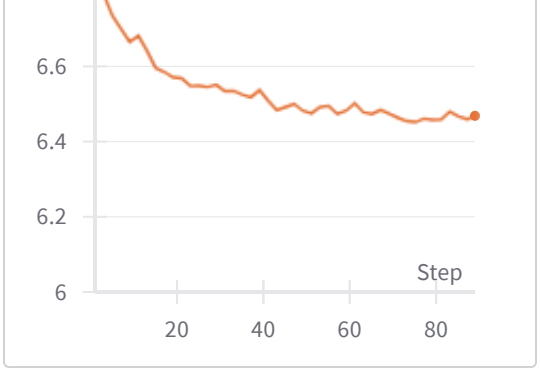
# iNaturalist 2019 results

## Details

- Trained on a Batch Size of 512
- 300k+ images, 1010 different classes with imbalanced distribution.
- Utilized a Nvidia a40, each epoch took ~30 minutes to train.
- The model was trained using the AdamW optimizer with momentum values β1 = 0.9 and β2 = 0.999, a weight decay of 0.05, and a learning rate of 2e-3 following a cosine decay schedule.
- Training involved 300 total epochs, with the first 5 epochs used for warmup.
- 9 Random Augmentations with a magnitude of 1 applied.
- Mixup and cutmix were used with values of 0.8 and 1.0, respectively, alongside label smoothing set to 0.1. A drop path rate of 0.1 and a layer-wise decay of 0.65 were also implemented.

## Graphs






Created with ❤️ on Weights & Biases.

https://wandb.ai/ryanjunejo1-vector-institute-for-artificial-intelligence/hiera_inat2021_transfer_learning/reports/iNaturalist-Evaluation-Metrics--Vmlldzo5MjY3NTUy