Want to discuss LightlyTrain for your use case?
Schedule a call with our team to learn more.

Talk to us

```
pip install lightly-train
```

LightlyTrain

Train Better Models, Faster

LightlyTrain is the leading framework for transforming your data into state-of-the-art computer vision models. It covers the entire model development lifecycle from pretraining DINOv2/v3 vision foundation models on your unlabeled data to fine-tuning transformer and YOLO models on detection and segmentation tasks for edge deployment.

Contact us to request a license for commercial use.

Also check out LightlyStudio to easily visualize your annotations and predictions.

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News

- [0.17.0] - 2026-07-27: **LTDETRv2 for instance segmentation:** Train state-of-the-art LTDETRv2 instance segmentation models with ECViT backbones from EdgeCrafter, matching the accuracy of the original ECSeg implementation while being 10-20% faster! ONNX and TensorRT export is also out-of-the-box!
- [0.16.0] - 2026-06-25: ⚡ **Upgraded LTDETRv2 for object detection:** Following the success of LTDETR, LightlyTrain's DETR model, we release LTDETRv2 with significant architectural and performance improvements! It supports using ECViT backbones from EdgeCrafter and ONNX/TensorRT export for faster inference!
- [0.15.0] - 2026-04-14: 🔎 **Distillationv3:** Better generalizing distillation method that performs equally well across dense and global tasks and across all models, from ViTs to hybrids to CNNs (+support for custom teachers!). 🔎
- [0.14.0] - 2026-01-19: 🐣 **PicoDet, Tiny Models, and ONNX/TensorRT FP16 Support:** PicoDet object detection models for low-power embedded devices! All tasks now support tiny DINOv3 models and ONNX/TensorRT export in FP16 precision for faster inference! 🐣
- [0.13.0] - 2025-12-15: 🐣 **New Tiny Object Detection Models:** We release tiny DINOv3 models pretrained on COCO for object detection! 🐣
- [0.12.0] - 2025-11-06: 💡 **New DINOv3 Object Detection:** Run inference or fine-tune DINOv3 models for object detection! 💡
- [0.11.0] - 2025-08-15: 🚀 **New DINOv3 Support:** Pretrain your own model with distillation from DINOv3 weights. Or fine-tune our SOTA EoMT semantic segmentation model with a DINOv3 backbone! 🚀
- [0.10.0] - 2025-08-04: 🔥 **Train state-of-the-art semantic segmentation models** with our new **DINOv2 semantic segmentation** fine-tuning method! 🔥
- [0.9.0] - 2025-07-21: **DINOv2 pretraining** is now officially available!

Workflows

Object Detection

Instance Segmentation

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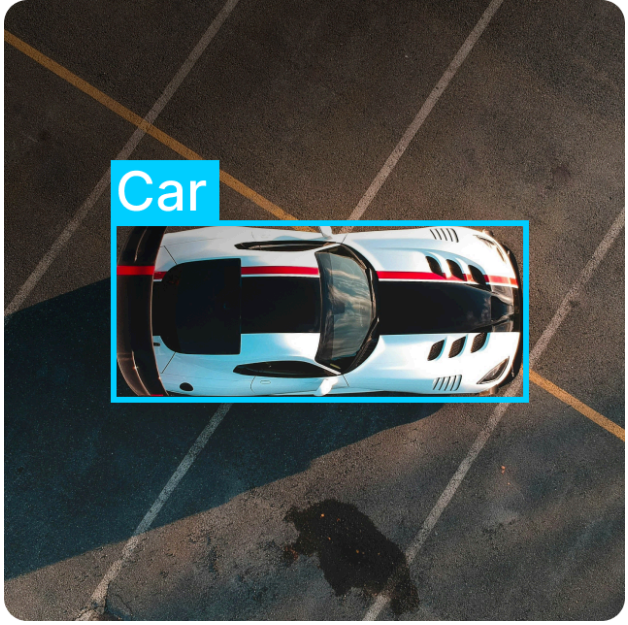

Train LTDETR detection models with DINOv2, DINOv3, or EdgeCrafter ECViT backbones.

Train LTDETRv2 or EoMT segmentation models with EdgeCrafter, DINOv2, or DINOv3 backbones.

Panoptic Segmentation

Train EoMT segmentation models with DINOv2 or DINOv3 backbones.

Semantic Segmentation

Train EoMT segmentation models with DINOv2 or DINOv3 backbones.

Image Classification

Depth Estimation

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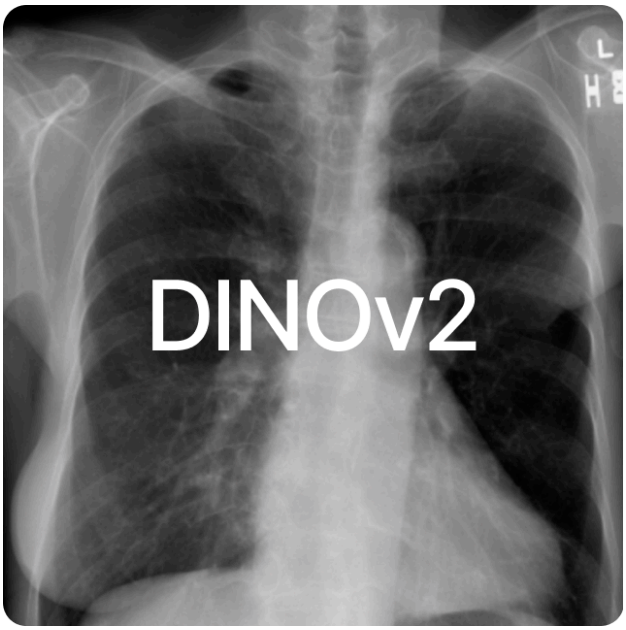
Train image classification models with any backbone.

Run Depth Anything V2 and V3 monocular depth inference.

Distillation

Distill knowledge from DINOv2 or DINOv3 into any model architecture.

Pretraining



Pretrain DINOv2 foundation models on your domain data.

Autolabeling

Generate high-quality pseudo labels for detection and segmentation tasks.

How It Works Open in Colab

Install Lightly**Train** on Python 3.8+ for Windows, Linux or MacOS.

```
pip install lightly-train
```

Then train an object detection model with:

```
import lightly_train

if __name__ == "__main__":
    lightly_train.train_object_detection(
        out="out/my_experiment",
        model="ltdetrv2-s-coco",
        data={
            # ... Data configuration
        }
      )
```

And run inference like this:

```
import lightly_train

# Load the model from the best checkpoint
model = lightly_train.load_model("out/my_experiment/exported_models/exported_best.pt")
# Or load one of the models hosted by LightlyTrain
model = lightly_train.load_model("ltdetrv2-s-coco")
results = model.predict("image.jpg")
```

Skip to content k start guide for more details.

Features

- Python, Command Line, and Docker support
- Built for high performance including multi-GPU and multi-node support
- Monitor training progress with MLflow, TensorBoard, Weights & Biases, and more
- Runs fully on-premises with no API authentication
- Export models in their native format for fine-tuning or inference
- Export models in ONNX or TensorRT format for edge deployment

Models

LightlyTrain supports the following model and workflow combinations.

Fine-tuning

Model	Object Detection	Instance Segmentation	Panoptic Segmentation	Semantic Segmentation	Image Classification
DINOv3	✅ 🔗	✅ 🔗	✅ 🔗	✅ 🔗	✅ 🔗
DINOv2	✅ 🔗	✅ 🔗	✅ 🔗	✅ 🔗	✅ 🔗
EdgeCrafter	✅ 🔗	✅ 🔗			
Any					✅ 🔗

Distillation & Pretraining

Model	Distillation	Pretraining
DINOv3	✅ 🔗	
DINOv2	✅ 🔗	✅ 🔗
Torchvision ResNet, ConvNext, ShuffleNetV2	✅ 🔗	✅ 🔗
TIMM models	✅ 🔗	✅ 🔗
Ultralytics YOLOv5–YOLO12, RT-DETR	✅ 🔗	✅ 🔗
RT-DETR, RT-DETRv2	✅ 🔗	✅ 🔗
RF-DETR	✅ 🔗	✅ 🔗
YOLOv12	✅ 🔗	✅ 🔗
Custom PyTorch Model	✅ 🔗	✅ 🔗

> **Note**
>
> v3, the model is paired with the matching training method or serves as distillation teacher (e.g. the th `method="dinov2"` for pretraining, or as teacher for the `distillation` method). For all other models, the listed model is the student: “Pretraining” trains that model directly, and “Distillation” distills a default teacher’s knowledge into it.

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Contact us if you need support for additional models.

Usage Events

LightlyTrain collects anonymous usage events to help us improve the product. We only track training method, model architecture, and system information (OS, GPU, CI, Container). To opt-out, set the environment variable: `export LIGHTLY_TRAIN_EVENTS_DISABLED=1`

License

Lightly**Train** offers flexible licensing options to suit your specific needs:

- **AGPL-3.0 License**: Perfect for open-source projects, academic research, and community contributions. Share your innovations with the world while benefiting from community improvements.
- **Commercial License**: Ideal for businesses and organizations that need proprietary development freedom. Enjoy all the benefits of LightlyTrain while keeping your code and models private. Includes model training and runtime license.
- **Free Community License**: Available for students, researchers, startups in early stages, or anyone exploring or experimenting with LightlyTrain. Empower the next generation of innovators with full access to the world of pretraining.

Commercial Pricing

Plan	Price	Eligibility
Startup	$5,000 / year	< $1M revenue **or** < 10 employees
Growth	$10,000 / year	< $10M revenue **or** < 100 employees
Enterprise	Custom	> $10M revenue **or** > 100 employees

All commercial plans include a license for model training, edge deployment, and inference. See the full Licensing page for plan details and inclusions.

Contact us to get started — we'll find the right option for your project!

Contact

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