Weights & Biases

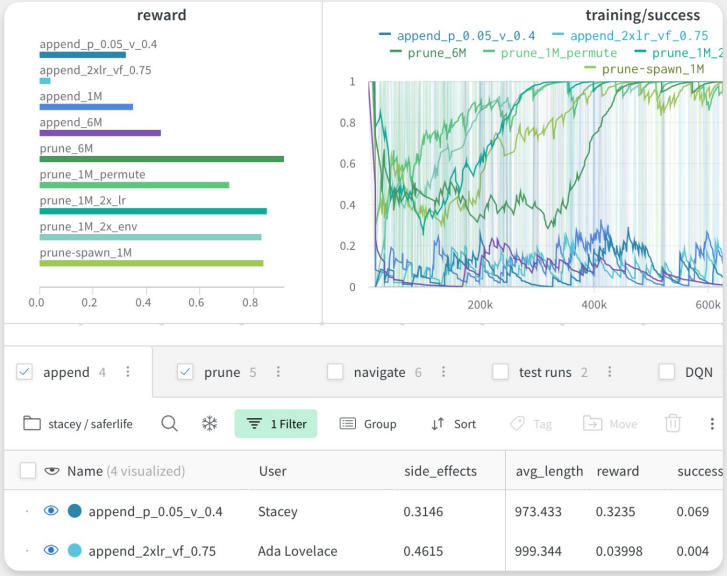
The AI developer platform

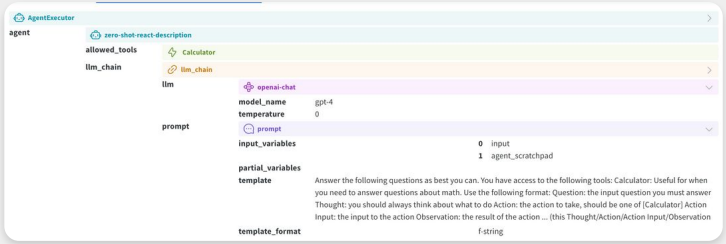
Enterprise AI System of Record for Public Sector

For Practitioners

Productivity for AI Practitioners

- Run thousands of concurrent experiments as a team & visualize all in a centralized place
- Document & share insights in live reports
- End-to-end debugging, reproducibility & discoverability
- Integrated with the latest LLMs, ML frameworks, techniques, and visualizations

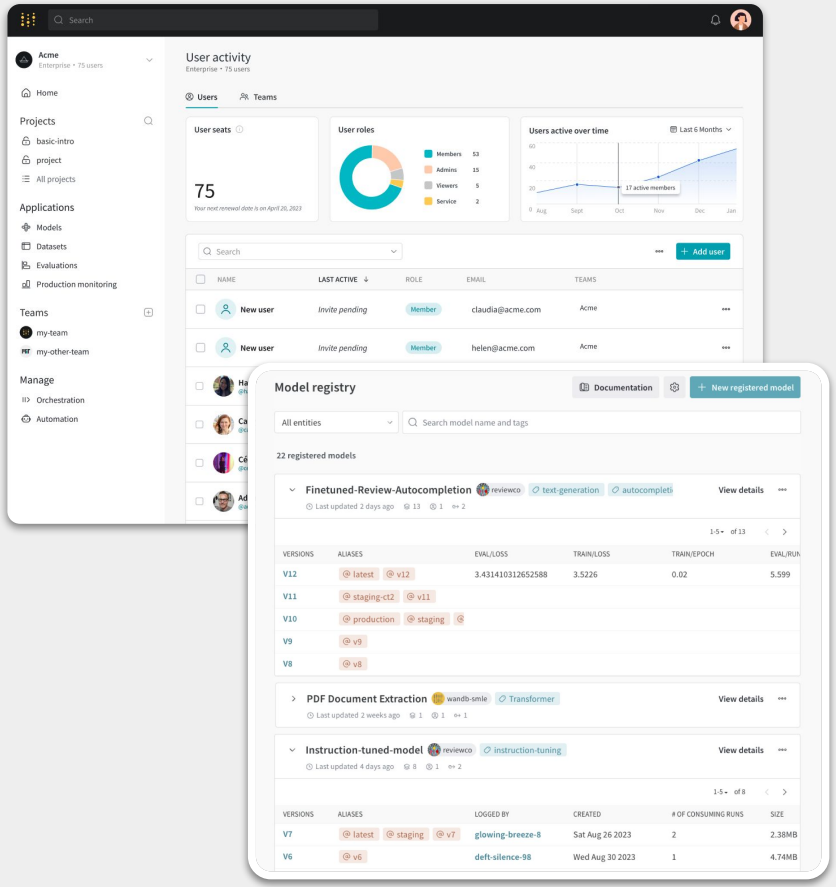




For Leadership

System of Record for AI Teams

- Single pane of glass to view and govern all teams' activities
- End-to-end visibility and traceability of data & model lineage
- Share best practices with collaborative dashboards and universal search
- Governance, tracking, and reproducibility of your organization's ML projects



Commercial support across all industry verticals

AI INNOVATORS / LEADERS

OpenAI · Meta · NVIDIA · Apple · xAI · amazon · Google · Microsoft · Safe Superintelligence Inc.

HIGH PERFORMANCE COMPUTING

SAMSUNG · Qualcomm · AMD

US FEDERAL

United States Strategic Command · United States Air Force · Department of Health & Human Services · DEFENSE INNOVATION UNIT · BERKELEY LAB

HEALTHCARE/LIFE SCIENCES

Genentech · Johnson & Johnson · absci · MAYO CLINIC

AUTONOMOUS VEHICLES/ROBOTICS

gm · TOYOTA RESEARCH INSTITUTE · Ford · lyft · ZOOX · RIVIAN · nuro · AIMOTIVE · JOHN DEERE · WAYVE · covariant · iRobot

FINANCIAL SERVICES

Fidelity INVESTMENTS · RBC · Square · stripe

MEDIA

pandora · Spotify · The Walt Disney Company · SONY

RETAIL/CONSUMER

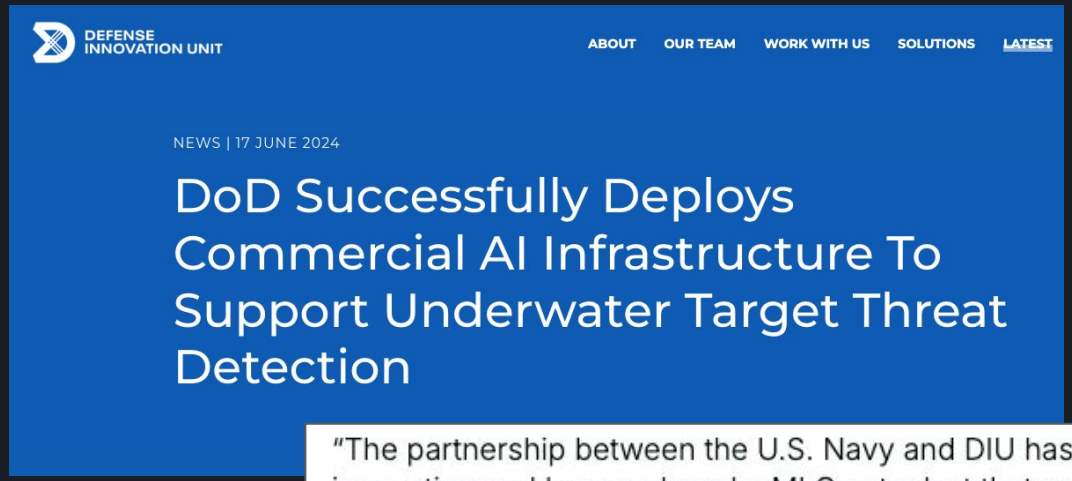
Pinterest · IKEA · Walmart · zalando

HIGH TECH / SOFTWARE

snowflake · Canva · salesforce · GONG · DOORDASH · IBM · UiPath™

Scaling in Government

Model Lifecycle with W&B:



Weights & Biases awarded success memo by DIU in early 2024
(link)

"The partnership between the U.S. Navy and DIU has opened the pathways to commercial innovation and has produced a MLOps toolset that ensures our solutions adapt and evolve at the speed of tactical relevance, placing an enduring capability in the hands of the warfighter," said Commander Eli Ford, Principal Assistant Program Manager, Underwater Explosive Ordnance Disposal, PMS 408 (Expeditionary Missions). "Nowhere was this more apparent than at an Integrated Battle Problem in the Fall of 2023 where sensor data was collected, new models were trained against an expanded threat environment, and updated detection models were deployed through the AMMO ecosystem back into the hands of the operator."

The Fall 2023 exercise also revealed that the vendors' new pipeline decreased the time needed for ML model updates from six months to a few days - a 97% decrease.

Demo

Appendix

Commercial Applications

Use Case

Industrial Farming

John Deere uses AI technology to make an intelligent sprayer that drives through fields and quickly targets and sprays weeds, leaving the crops intact. This is helping them produce more food while using less resources.

Use Case

Satellite Data

Capella Space uses microwave remote sensing to measure the reflectance of energy that can pierce clouds and operate at night, providing its own source of illumination.

Use Case

Drug Discovery

Roche is accelerating drug discovery using GenAI models. AI models help scientists rapidly explore molecular designs and identify potential drug molecules and interactions.

Federal Applications

Use Case

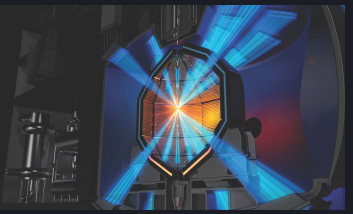
Target Recognition

The United States Navy is leveraging model registry and model training as part of a proprietary five-tool vendor stack for Automatic Target Recognition of mine countermeasures in support of a Joint All-Domain Command and Control Unmanned Underwater Vehicle initiative.

Use Case

Wargaming

The United States Strategic Command is using experiment tracking with computer vision on remotely sensed geospatial data and conducting simulations and optimization assessments of various facilities and infrastructure.

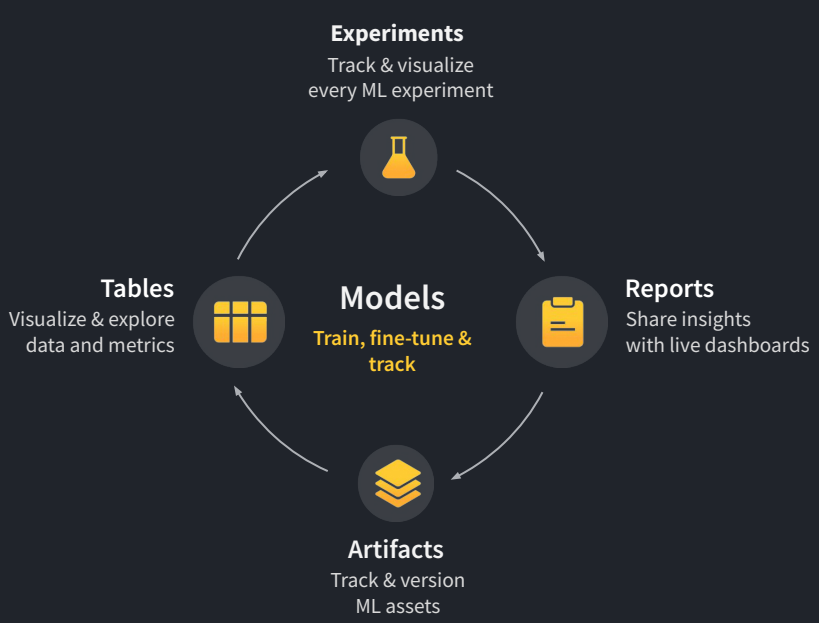


Use Case

3D Printing

Lawrence Livermore National Laboratory uses experiment tracking and tables to optimize dice scores to ensure their models accurately detect anomalies in the 3D Printing of polymers.

Weights & Biases



Registry
Publish and share your ML models and datasets

Automations
Trigger workflows automatically

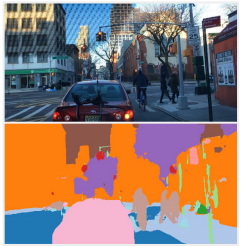
Sweeps
Optimize your hyperparameters

Optimize, Automate & Scale Up your Experiments

Experiment Tracking

Store, measure, and compare every **Experiment**

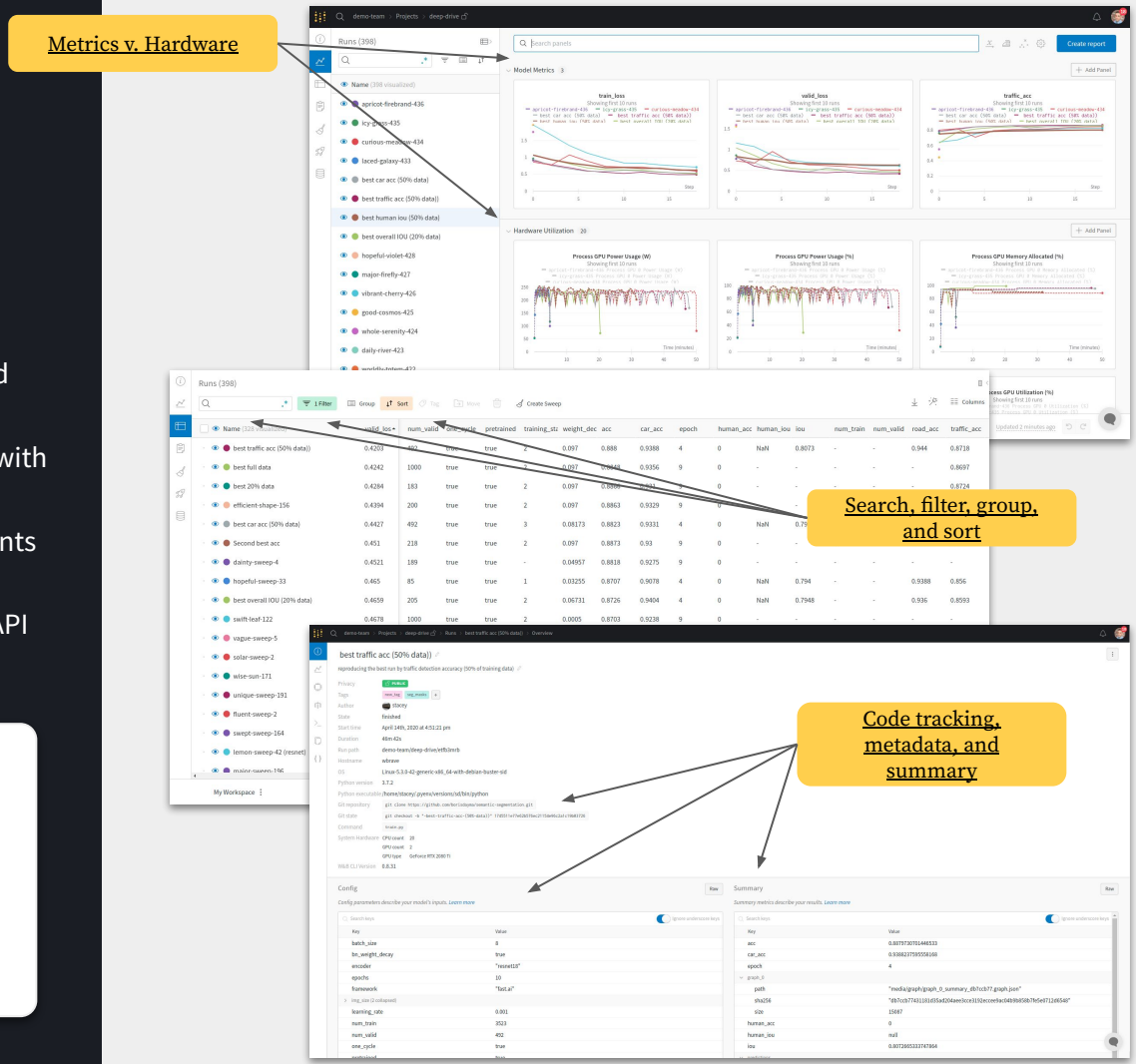
- Efficiently track, compare, and visualize model metrics and metadata flexibly in real-time
- Automatically tracks hardware utilization for rapid comparison to model performance
- First-class support for computer vision use cases with image, video, and overlay logging
- Dynamically search, filter, and compare Experiments via Runs tables and visualizations
- Access any platform data via complex queries or API



The View from the Driver's Seat

See Weights & Biases applied to a computer vision use case to segment dashboard camera scenes.

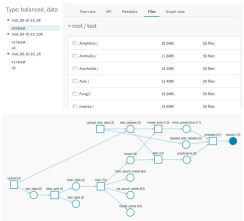
Dashboard Report



Artifacts

Version, store, and track lineage for all **Models** and **Datasets**

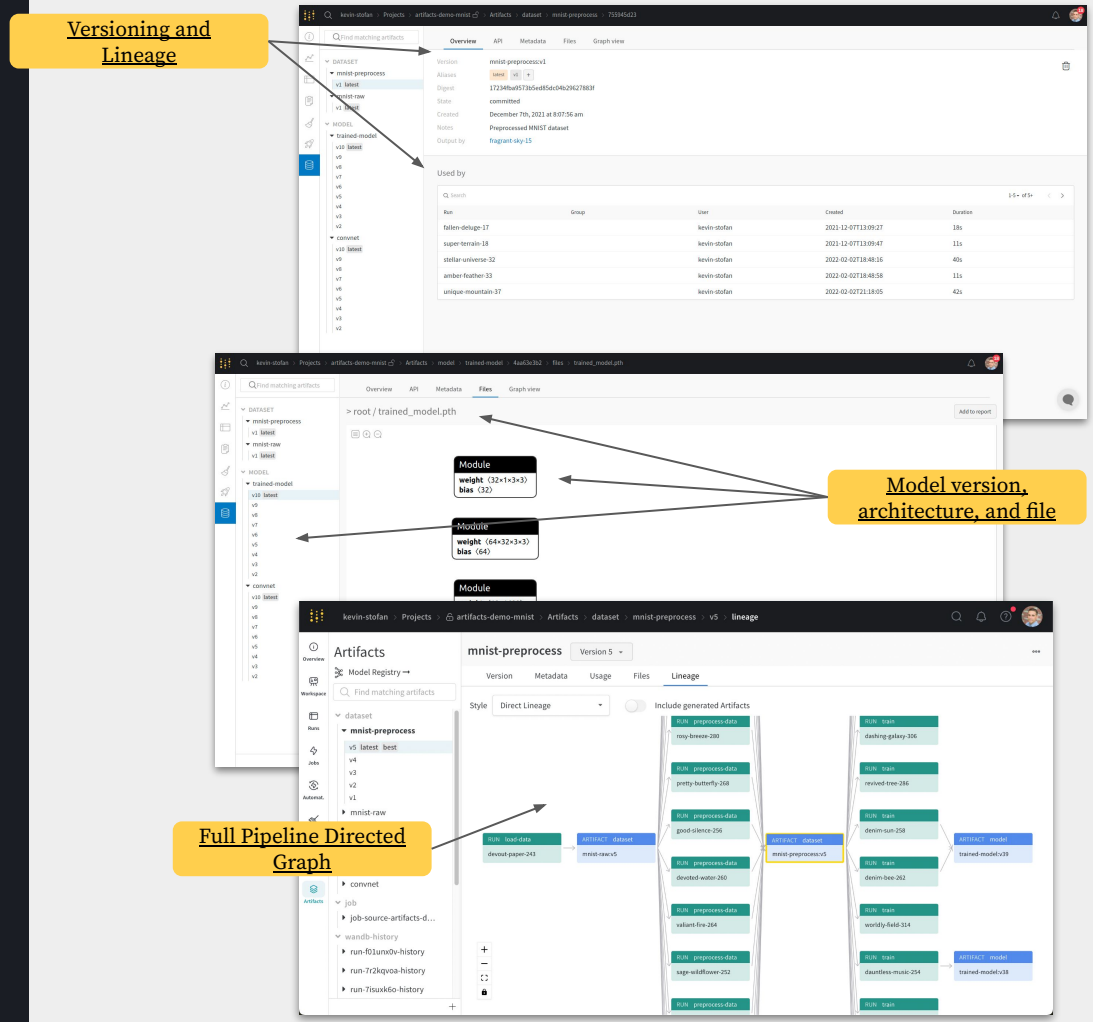
- Track dataset and model lineage across your entire ML pipeline integrated with your existing tools
- Datasets and models are automatically versioned, stored, and immediately available for reproduction
- Store and retrieve Artifacts in any format including models in PyTorch, ONNX, and Tensorflow
- Conduct model management across every version and iteration of your Experiments
- Rapidly reproduce and modify pipelines with Launch



Artifacts for Model Management

See the use of W&B Artifacts to conduct model management including versioning, lineage, and lifecycle.

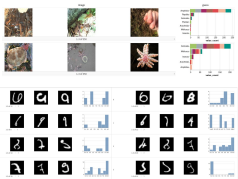
Docs Project Code



Tables

Evaluate, compare, and visualize all of your **Data**

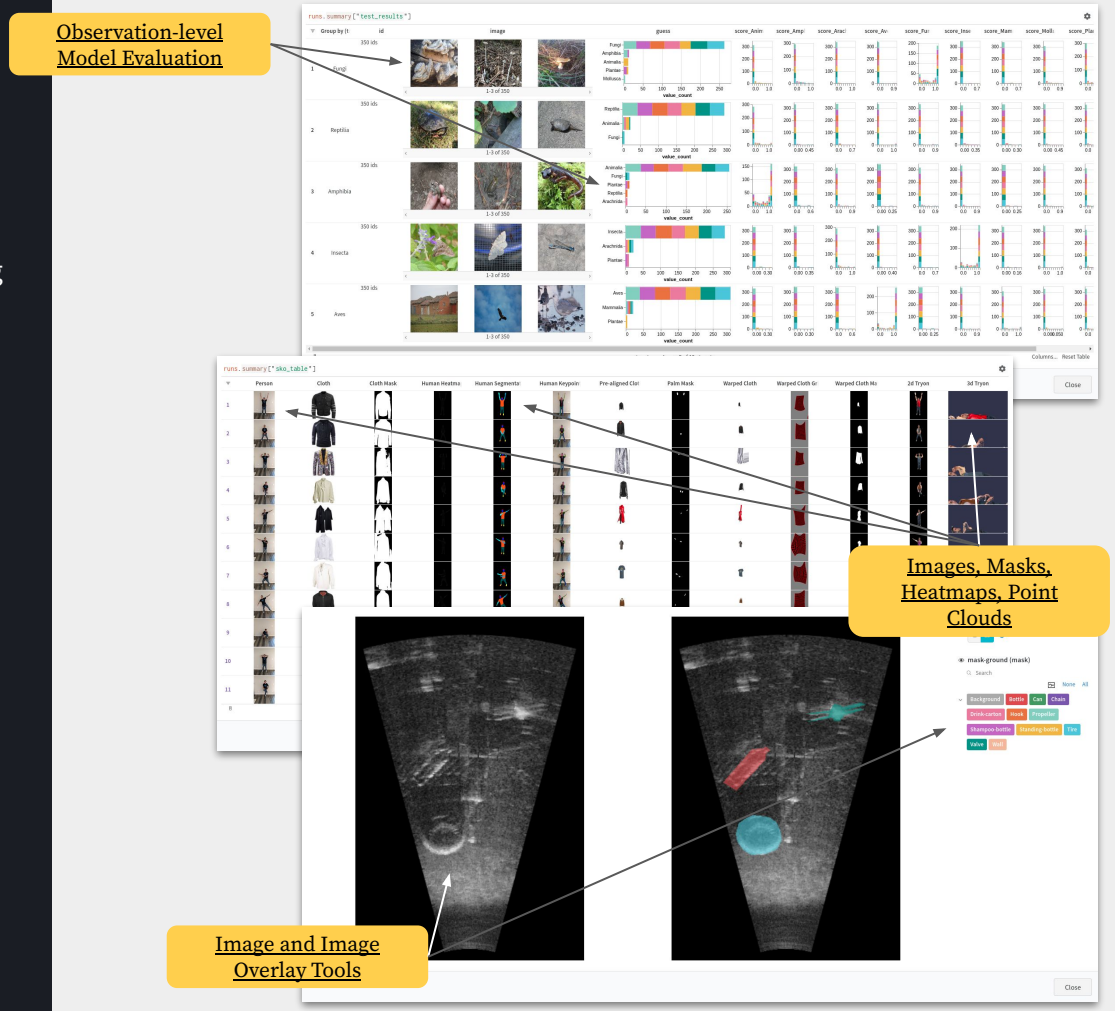
- Log and visualize a wide range of rich media including images, video, 3D models, and overlays
- First-class computer vision support; log and visualize bounding boxes and segmentation masks
- Evaluate model performance and hardware utilization alongside rich media
- Log and visualize image overlays over time to track model performance during the course of training
- Access any data in the W&B platform with Weave



Model Evaluation in W&B

Take a walkthrough of W&B Tables (“dataframes with superpowers”) in a model evaluation setting.

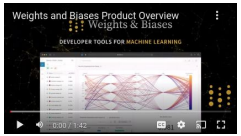
Dashboard Report



Registry and Launch

Full suite of **Model CI/CD** and **Model Management** tools

- First-class Model Registry with lineage tracking, history, model architecture, and versioning
- Track and promote model versions in all lifecycle stages built on Artifacts and Experiments
- Execute and modify previous Runs on remote infrastructure via K8s, Sagemaker, and GCP
- Containerize and execute runs from remote repos
- Create and manage Run queues from the UI or command line

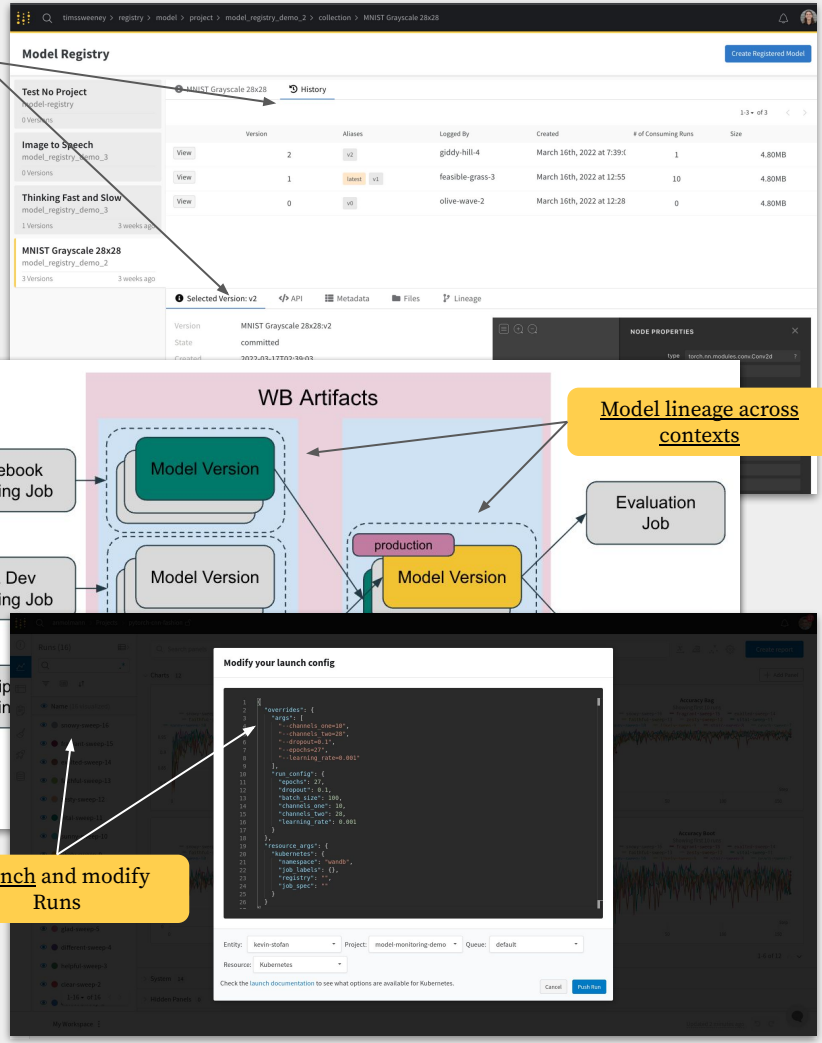


Weights & Biases
Upcoming Features

Listen to our Product team provide a walkthrough of Model Registry, CI/CD, and Launch

Webinar

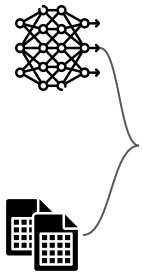
Model portfolio, history, and architecture



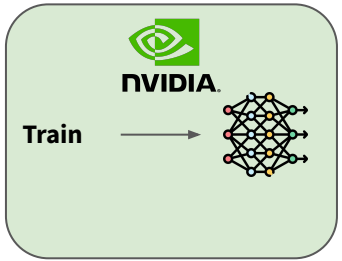
Common Model Lifecycle

For a single model, process can take 8-12 weeks with a 10 person team

Code is written

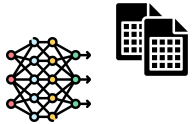


Data is curated

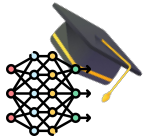


Evaluate

Document



Deploy



ML Engineer/DS

Tracking metrics and results
Versioning model and dataset
Trying to quickly iterate on ideas but
…held back by slow analysis cycles, and manual documentation

ML Ops Engineer

Scaling infrastructure
Provisioning environments
Model management
Deploying models
Losing time while sustaining custom tooling

Managers/Stakeholder/Regulatory

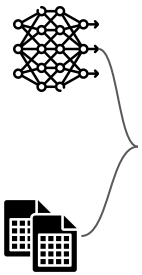
Research documentation
Model Approvals
Stakeholder alignment
Asking increasing amount of questions…
Frustrated by model explainability

Research with W&B:

W&B reduces time from experimentation to deployment - *without* sacrificing quality or safety

```
!pip install wandb
```

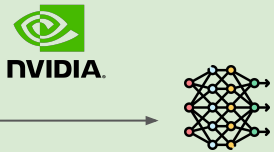
Code is written



Data is curated

W&B Registry can store datasets for reuse & audit

Train

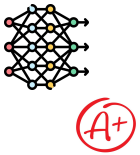


W&B Launch provides easily configurable training jobs.

W&B Sweeps provide native Hyperparameter tuning

Documented integration with Optuna

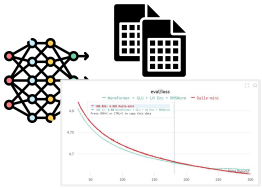
Evaluate



W&B Experiment Tracking: all metadata from training run is automatically logged for governance, debugging and reproducibility

W&B Tables delivers powerful comparison views, including rich media outputs vs. ground truth

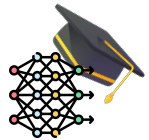
Document



W&B Reports allow for publishing analysis and results.

Easily collaborate with teammates in central system

Deploy



W&B Facilitates Model CI/CD

W&B Registry serves as version control for models, including all lineage associated with assets

Managers/Stakeholders/Regulatory

Asset documentation
Project approvals
Stakeholder alignment
Audit Ready

Introducing W&B Weave

Evaluate, monitor, and iterate on AI applications

Time to value

Speed up iteration from prototype to production

Observability

Improve your apps with real-world feedback

Governance

Safeguard your brand with guardrails

Flexibility

Framework, model, cloud agnostic

End-to-end AI

Part of one platform to build models and apps

Collaboration

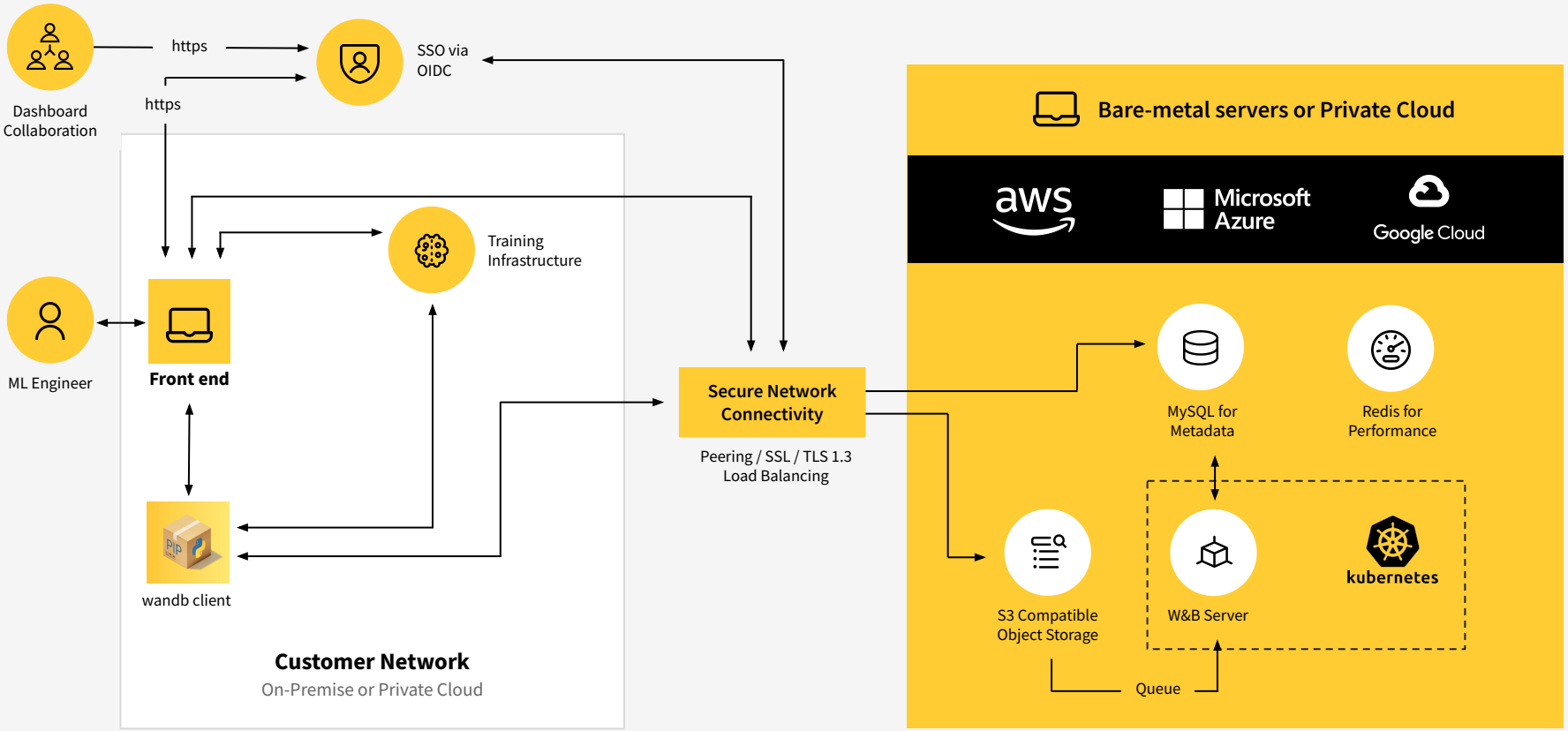
Share and build on your team's IP

Weights & Biases

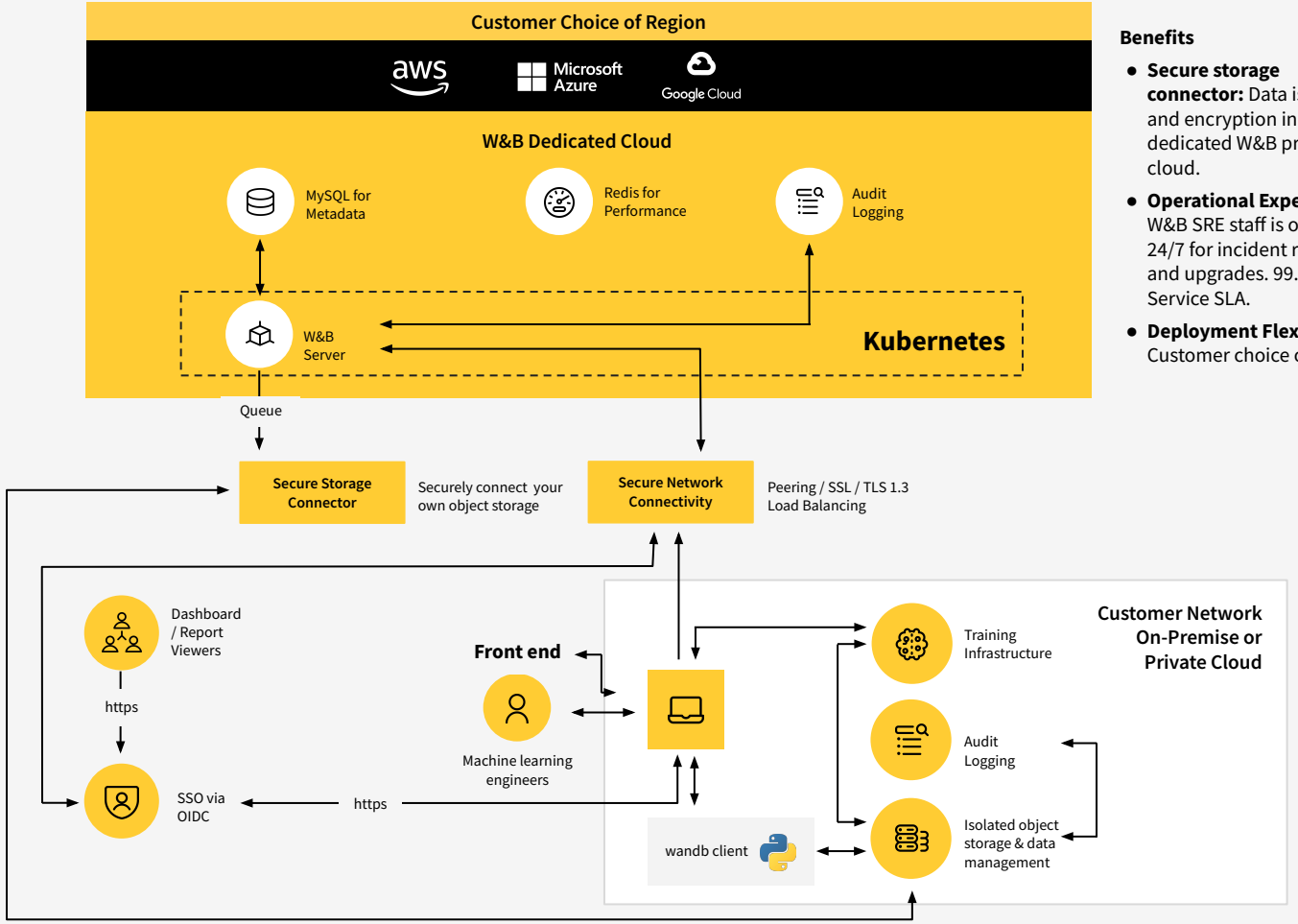
Supported AI Workflow

Federal Deployment Options

Customer-Managed (On-Prem)



W&B Dedicated Cloud



Benefits

- **Secure storage connector:** Data isolation and encryption in your dedicated W&B private cloud.
- **Operational Expertise:** W&B SRE staff is on call 24/7 for incident response and upgrades. 99.9% Service SLA.
- **Deployment Flexibility:** Customer choice of region