# Palmer Penguins Multi-Model Classifier API 20.0 OAS 3.1



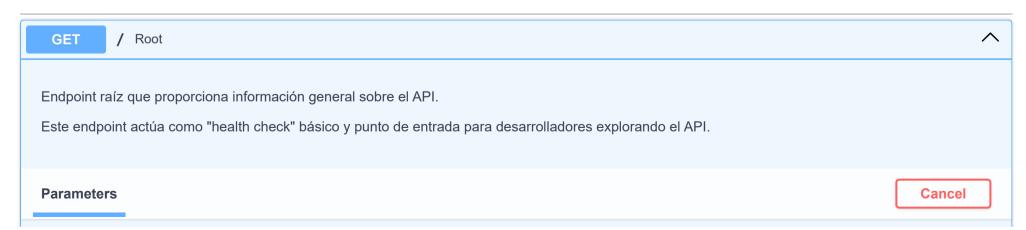
/openapi.json

```
API RESTful para clasificación de especies de pingüinos usando múltiples algoritmos de ML.
**Características principales:**
- **Multiples algoritmos**: Logistic Regression, Random Forest, Gradient Boosting, SVM, Neural Network
- **Selección dinámica**: Cambio de modelo activo sin reiniciar el servicio
- **Comparación automática**: Métricas y rankings de todos los modelos entrenados
- **Entrenamiento on-demand**: Re-entrenamiento de algoritmos via API
- **A/B Testing**: Soporte nativo para experimentación con modelos
**Dataset**: Palmer Penguins - Clasificación entre especies Adelie, Chinstrap, y Gentoo
🚀 **MLOps Ready**: Versionado, logging, monitoring y gestión completa del ciclo de vida
```

Contact MLOps Team

MIT

## default



 $\wedge$ 

No parameters

Execute Clear

#### Responses

#### Curl

```
curl -X 'GET' \
  'http://localhost:8989/' \
  -H 'accept: application/json'
```

#### **Request URL**

http://localhost:8989/

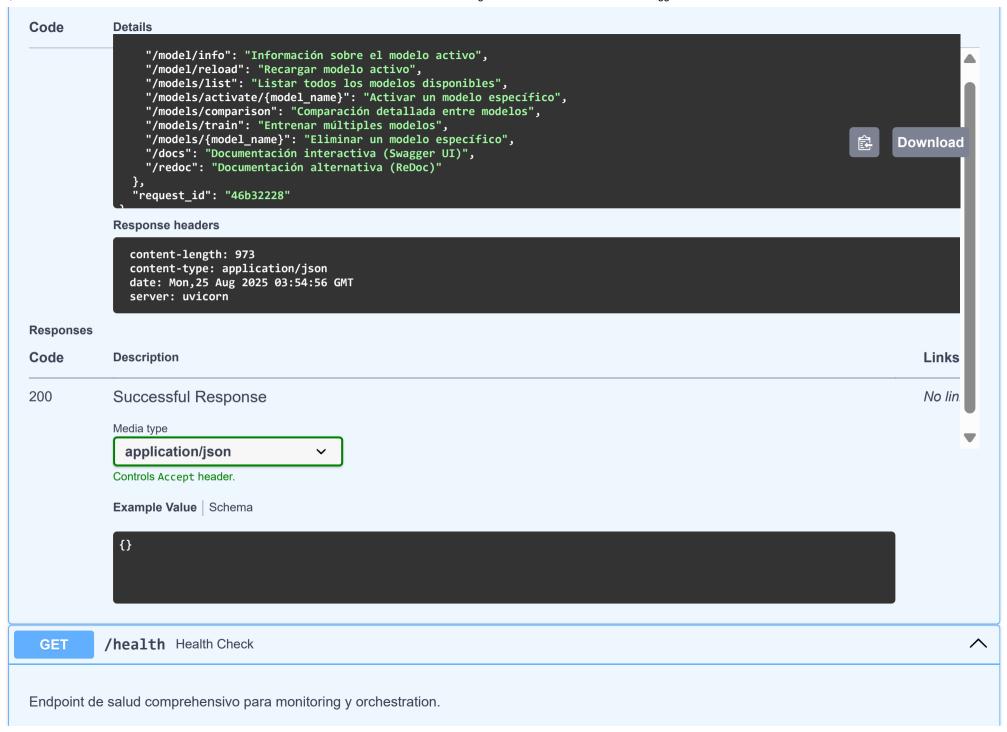
#### Server response

#### Code Details

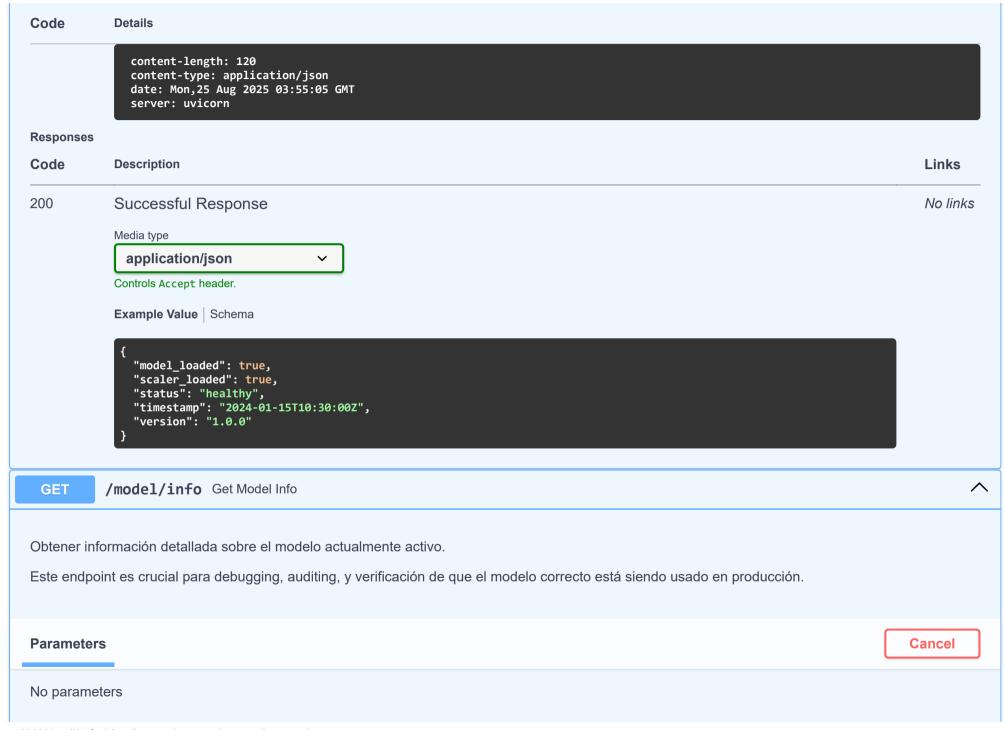
200

#### Response body

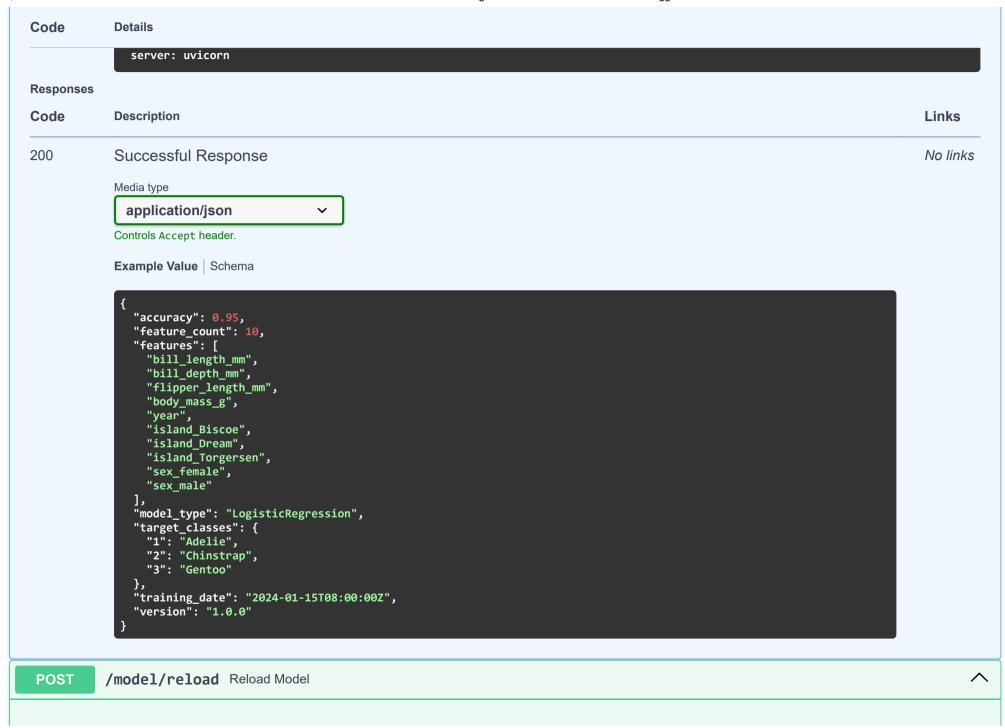
```
"service": "Palmer Penguins Multi-Model Classifier",
  "version": "2.0.0",
  "status": "active",
  "model_loaded": true,
  "active_model": "svm_rbf",
  "model_load_time": "2025-08-25T03:48:53.553593",
  "features": {
    "multi_model_support": true,
    "dynamic_model_switching": true,
    "auto_comparison": true,
    "on_demand_training": true
},
  "endpoints": {
    "/predict/simple": "Predicción con entrada user-friendly",
    "/predict/complete": "Predicción con one-hot encoding explícito",
```



Este endpoint es fundamental para sistemas de producción donde tools como Kubernetes necesitan verificar la salud del servicio. Cancel **Parameters** No parameters Clear **Execute** Responses Curl curl -X 'GET' \ 'http://localhost:8989/health' \ -H 'accept: application/json' **Request URL** http://localhost:8989/health Server response Code **Details** 200 Response body "status": "healthy", "model\_loaded": true, "scaler\_loaded": true, "timestamp": "2025-08-25T03:55:06.827185", "version": "2.0.0" Download Response headers



**Execute** Clear Responses Curl curl -X 'GET' \ 'http://localhost:8989/model/info' \ -H 'accept: application/json' Request URL http://localhost:8989/model/info Server response Code **Details** 200 Response body "model\_type": "SVC", "version": "2025-08-25T03:42:46.940181", "training\_date": "2025-08-25T03:42:46.940181", "accuracy": 1, "feature\_count": 0, "target\_classes": { "1": "Adelie", "2": "Chinstrap", "3": "Gentoo" "features": [] Download Response headers content-length: 212 content-type: application/json date: Mon,25 Aug 2025 03:55:09 GMT



Recargar artefactos del modelo activo desde MODELS DIR sin reiniciar el servicio.

Útil cuando un nuevo modelo ha sido guardado (por ejemplo, desde Jupyter) en el volumen compartido. Este endpoint vuelve a cargar el modelo activo, scaler y metadata, y retorna la información del modelo recién cargado.

#### **Parameters**

Cancel

No parameters

**Execute** Clear

## Responses

#### Curl

```
curl -X 'POST' \
  'http://localhost:8989/model/reload' \
  -H 'accept: application/json' \
  -d ''
```

### Request URL

http://localhost:8989/model/reload

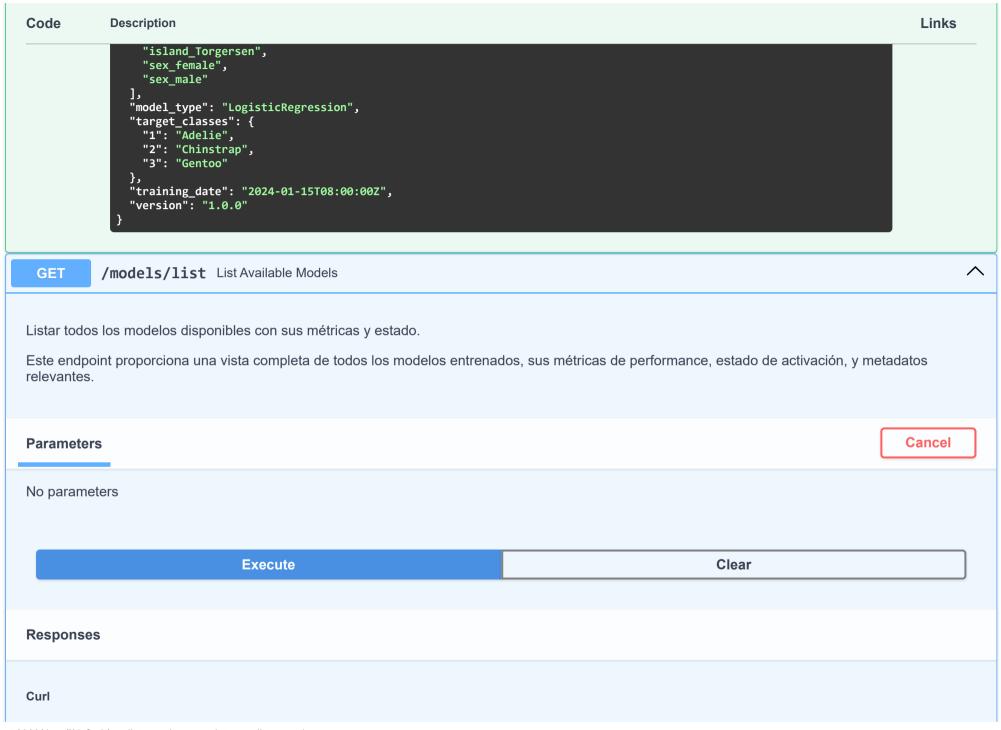
#### Server response

Code Details

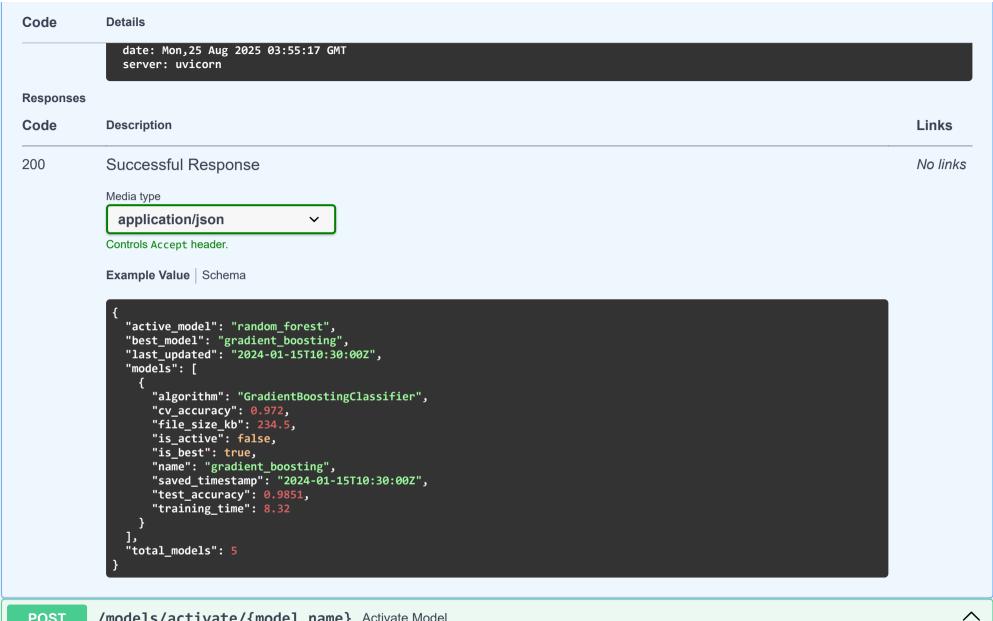
Response body

{
 "model\_type": "SVC",
 "version": "2025-08-25T03:42:46.940181",

```
Code
            Details
                "training date": "2025-08-25T03:42:46.940181",
                "accuracy": 1,
                "feature_count": 0,
                "target_classes": {
                 "1": "Adelie",
                 "2": "Chinstrap",
                                                                                                                                     Download
                  "3": "Gentoo"
                "features": []
             Response headers
               access-control-allow-credentials: true
               access-control-allow-origin: http://localhost:8989
               content-length: 212
               content-type: application/json
               date: Mon, 25 Aug 2025 03:55:14 GMT
               server: uvicorn
               vary: Origin
Responses
Code
             Description
                                                                                                                                         Links
200
            Successful Response
                                                                                                                                         No links
             Media type
              application/json
             Controls Accept header.
            Example Value | Schema
                "accuracy": 0.95,
                "feature_count": 10,
                "features": [
                  "bill_length_mm",
                 "bill_depth_mm",
                 "flipper_length_mm",
                  "body_mass_g",
                  "year",
                  "island_Biscoe",
                  "island_Dream",
```

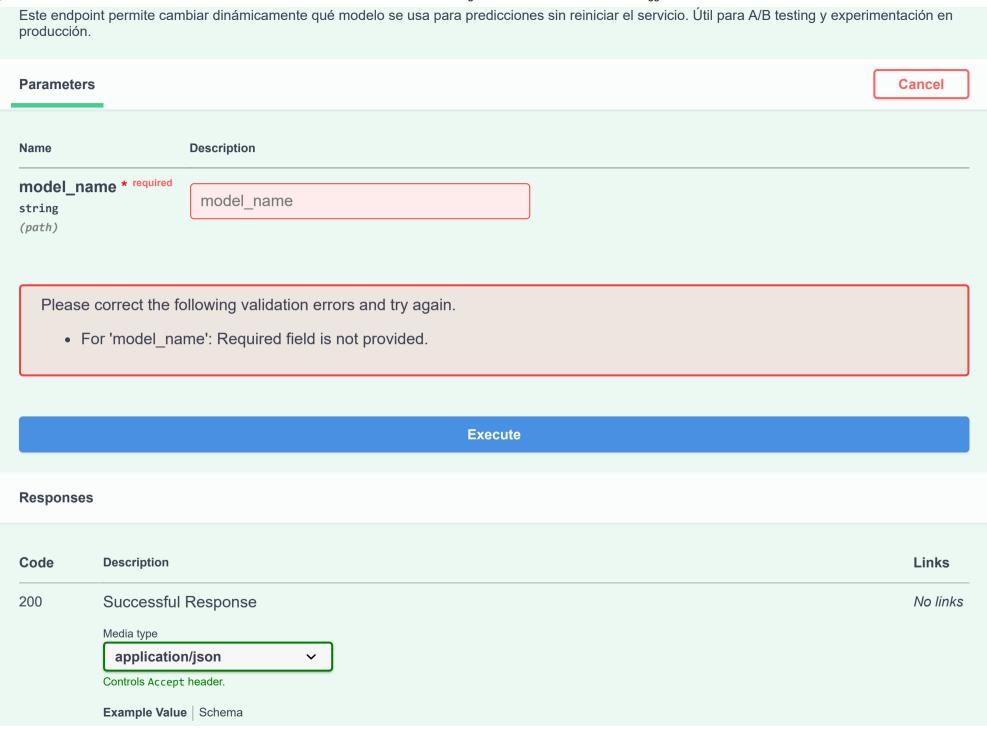


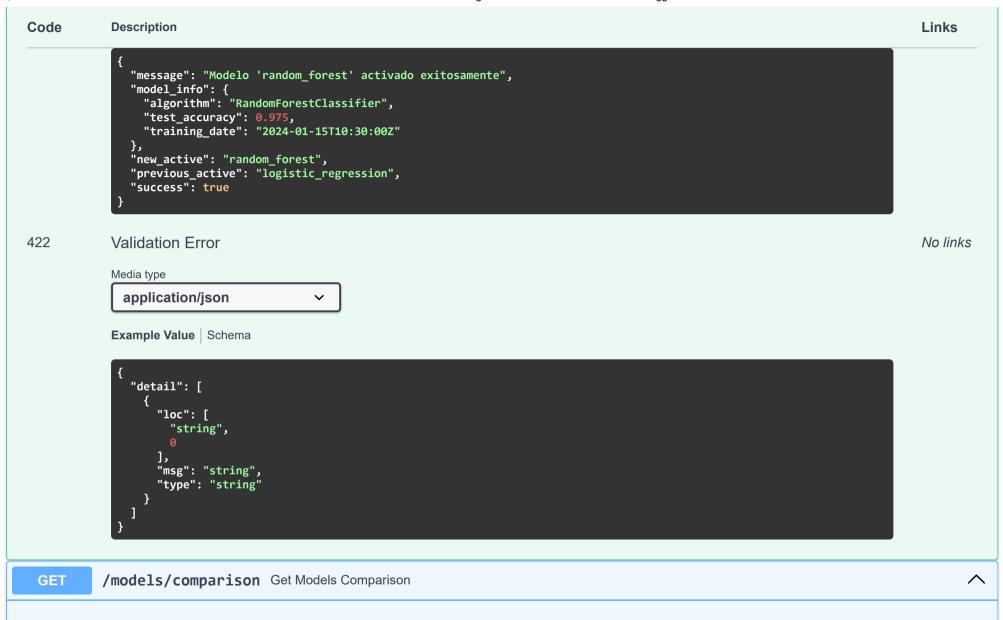
```
curl -X 'GET' \
   'http://localhost:8989/models/list' \
  -H 'accept: application/json'
Request URL
 http://localhost:8989/models/list
Server response
Code
            Details
200
             Response body
                "total_models": 5,
                "active_model": "svm_rbf",
                "best_model": "svm_rbf",
                "models": [
                    "name": "random_forest",
                    "algorithm": "RandomForestClassifier",
                   "is_active": false,
                    "is_best": false,
                   "test_accuracy": 1,
                    "cv_accuracy": 0.9849056603773585,
                    "training_time": 0.1775057315826416,
                    "file_size_kb": 226.89,
                    "saved_timestamp": "2025-08-25T03:42:46.922568"
                    "name": "svm_rbf",
                    "algorithm": "SVC",
                    "is_active": true,
                    "is best": true,
                    "test_accuracy": 1,
                    "cv_accuracy": 0.9962264150943396,
                    "training_time": 0.0044329166412353516,
                    "file_size_kb": 9.3,
                    "saved_timestamp": "2025-08-25T03:42:46.940181"
                                                                                                                                     Download
             Response headers
               content-length: 1408
               content-type: application/json
```



**POST** /models/activate/{model\_name} Activate Model

Activar un modelo específico para uso en predicciones.



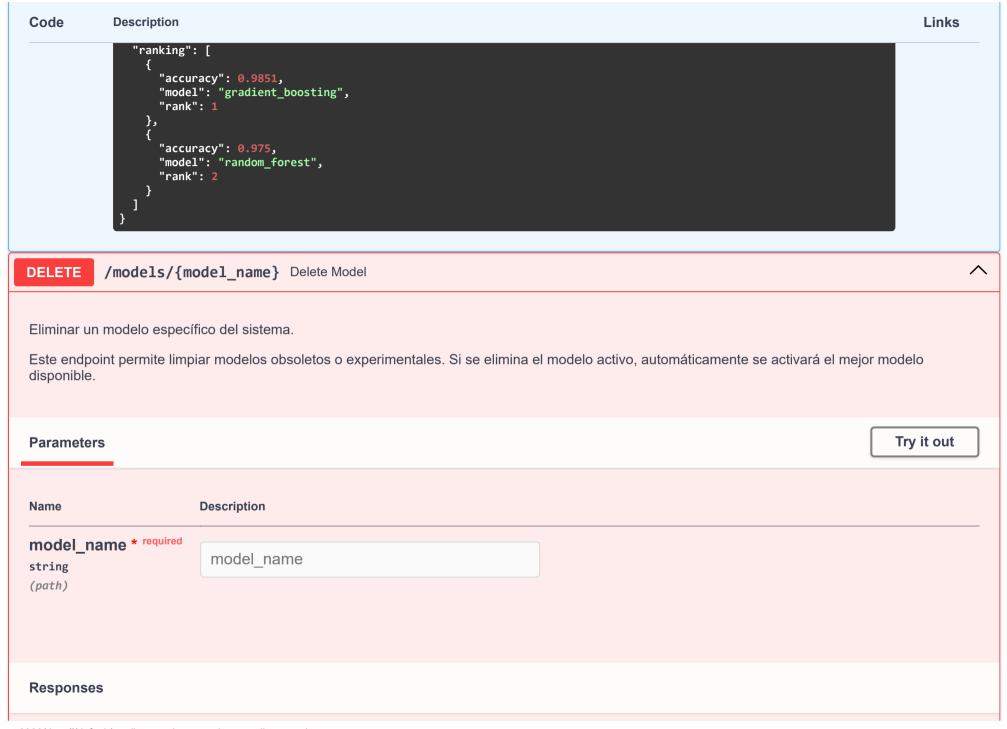


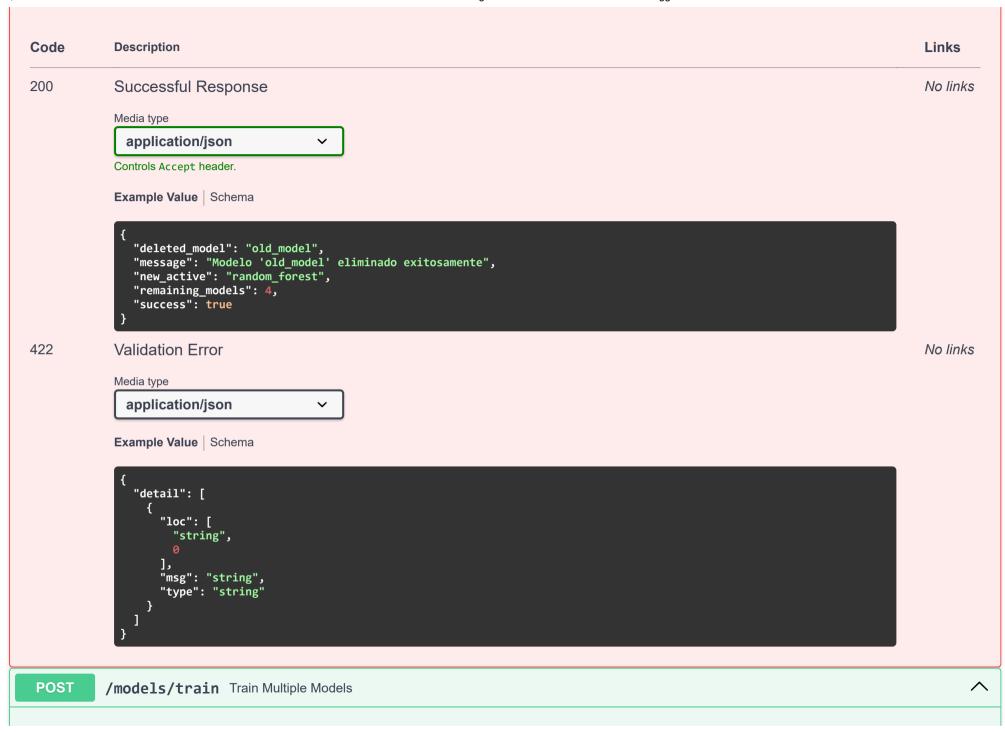
Obtener comparación detallada entre todos los modelos entrenados.

Este endpoint proporciona métricas comparativas, rankings, y análisis detallado de performance de todos los modelos disponibles. Útil para análisis de modelos y toma de decisiones sobre qué modelo usar en producción.

```
Cancel
Parameters
No parameters
                                Execute
                                                                                                       Clear
Responses
Curl
 curl -X 'GET' \
   'http://localhost:8989/models/comparison' \
  -H 'accept: application/json'
Request URL
 http://localhost:8989/models/comparison
Server response
Code
            Details
200
            Response body
               "experiment_info": {
                 "total_models_trained": 5,
                 "best_model": "svm_rbf",
                 "timestamp": "2025-08-25T03:42:46.852682",
                 "cv_folds": 5,
                 "test_size": 0.2,
                 "random_state": 42
               "ranking": [
                   "rank": 1,
```

```
Code
             Details
                    "model": "random_forest",
                    "accuracy": 1
                    "rank": 2,
                    "model": "svm_rbf",
                    "accuracy": 1
                    "rank": 3,
                    "model": "logistic_regression",
                                                                                                                                     Download
                    "accuracy": 0.9850746268656716
                    "rank": 4,
             Response headers
               content-length: 8321
               content-type: application/json
               date: Mon, 25 Aug 2025 03:55:40 GMT
               server: uvicorn
Responses
Code
             Description
                                                                                                                                         Links
200
             Successful Response
                                                                                                                                         No links
             Media type
              application/json
             Controls Accept header.
             Example Value | Schema
                "experiment_info": {
                  "best_model": "gradient_boosting",
                  "cv_folds": 5,
                  "test_size": 0.2,
                  "timestamp": "2024-01-15T10:30:00Z",
                  "total_models_trained": 5
                "models_summary": {},
```





Entrenar múltiples algoritmos simultáneamente y compararlos. Este endpoint ejecuta el pipeline completo de entrenamiento multi-modelo: 1. Procesa los datos Palmer Penguins 2. Entrena los algoritmos especificados (o todos si no se especifica) 3. Evalúa y compara todos los modelos 4. Guarda todos los artefactos 5. Opcionalmente activa el mejor modelo Útil para experimentación con nuevos algoritmos y re-entrenamiento periódico. **Parameters** Cancel No parameters Request body required application/json Edit Value | Schema

```
{
  "algorithms": [
    "logistic_regression",
    "random_forest",
    "swm_rbf"
],
  "auto_activate_best": true,
  "cv_folds": 5,
  "test_size": 0.2
}
```

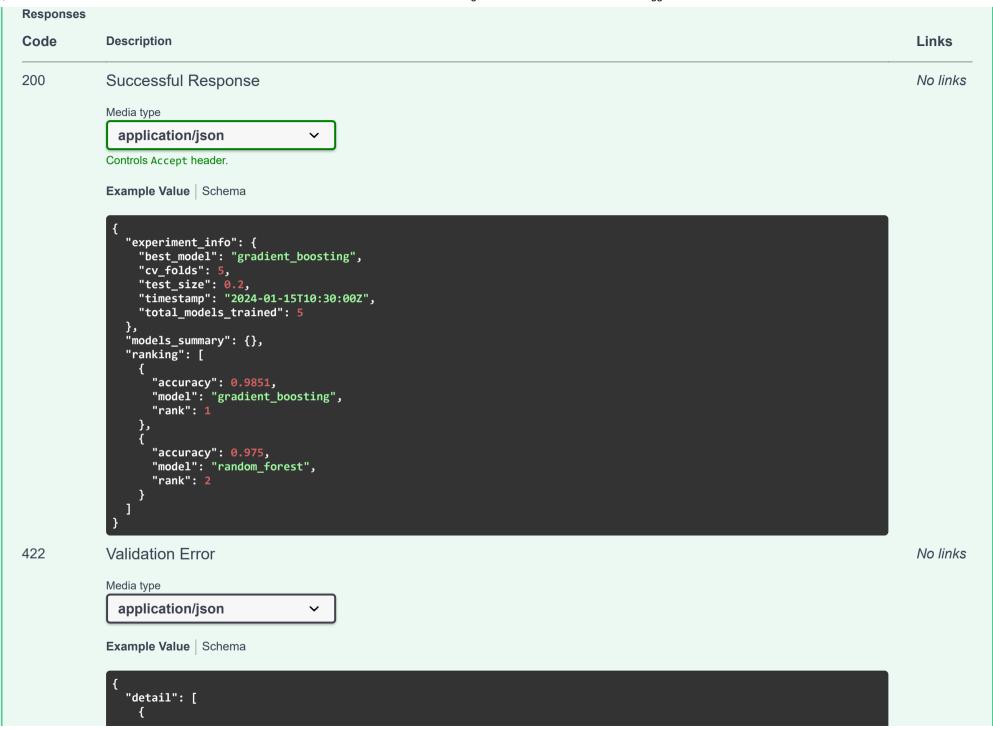
**Execute** Clear

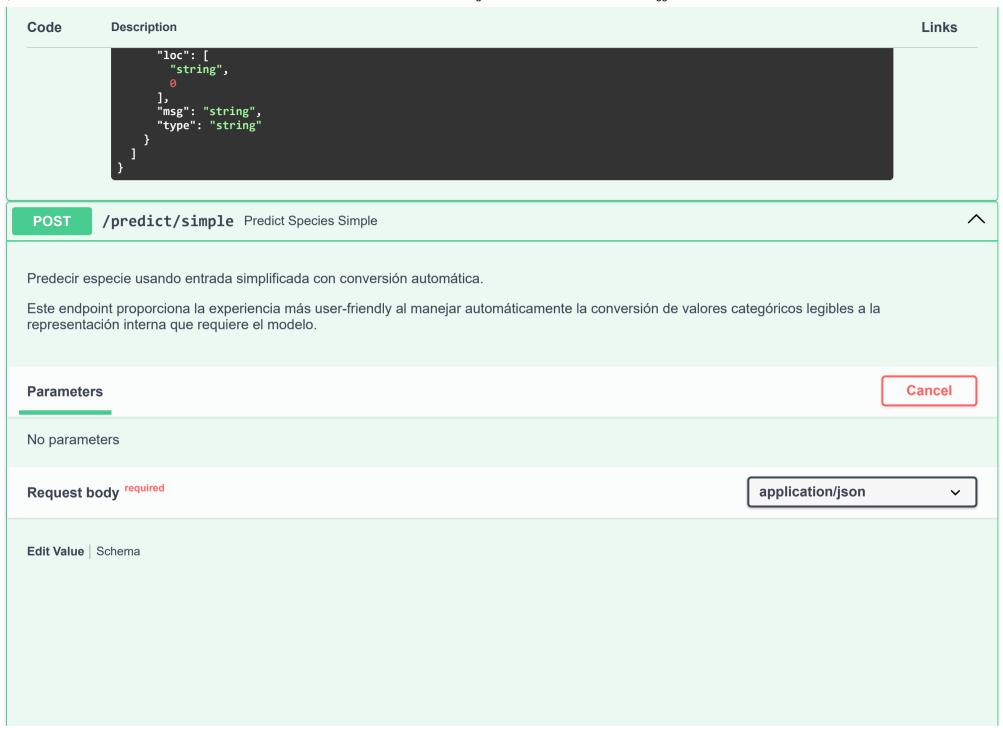
## Responses

#### Curl

```
curl -X 'POST' \
   'http://localhost:8989/models/train' \
   -H 'accept: application/json' \
   -H 'Content-Type: application/json' \
   -d '{
    "algorithms": [
        "logistic_regression",
        "random_forest",
        "svm_rbf"
    ],
    "auto_activate_best": true,
    "cv_folds": 5,
    "test_size": 0.2
}'
```

```
Request URL
 http://localhost:8989/models/train
Server response
Code
            Details
200
             Response body
                "experiment_info": {
                 "total_models_trained": 3,
                 "best_model": "svm_rbf",
                 "timestamp": "2025-08-25T03:56:04.275088",
                 "cv folds": 5,
                 "test_size": 0.2,
                 "random_state": 42
               "ranking": [
                   "rank": 1,
                    "model": "random_forest",
                    "accuracy": 1
                   "rank": 2,
                    "model": "svm_rbf",
                    "accuracy": 1
                    "rank": 3,
                   "model": "logistic_regression",
                    "accuracy": 0.9850746268656716
                                                                                                                                     Download
                "models_summary": {
                  "logistic_regression": {
             Response headers
               access-control-allow-credentials: true
               access-control-allow-origin: http://localhost:8989
               content-length: 4778
               content-type: application/json
               date: Mon, 25 Aug 2025 03:56:02 GMT
               server: uvicorn
               vary: Origin
```





```
{
    "bill_depth_mm": 18.7,
    "bill_length_mm": 39.1,
    "body_mass_g": 3750,
    "flipper_length_mm": 181,
    "island": "Torgersen",
    "sex": "Male",
    "year": 2007
}
```

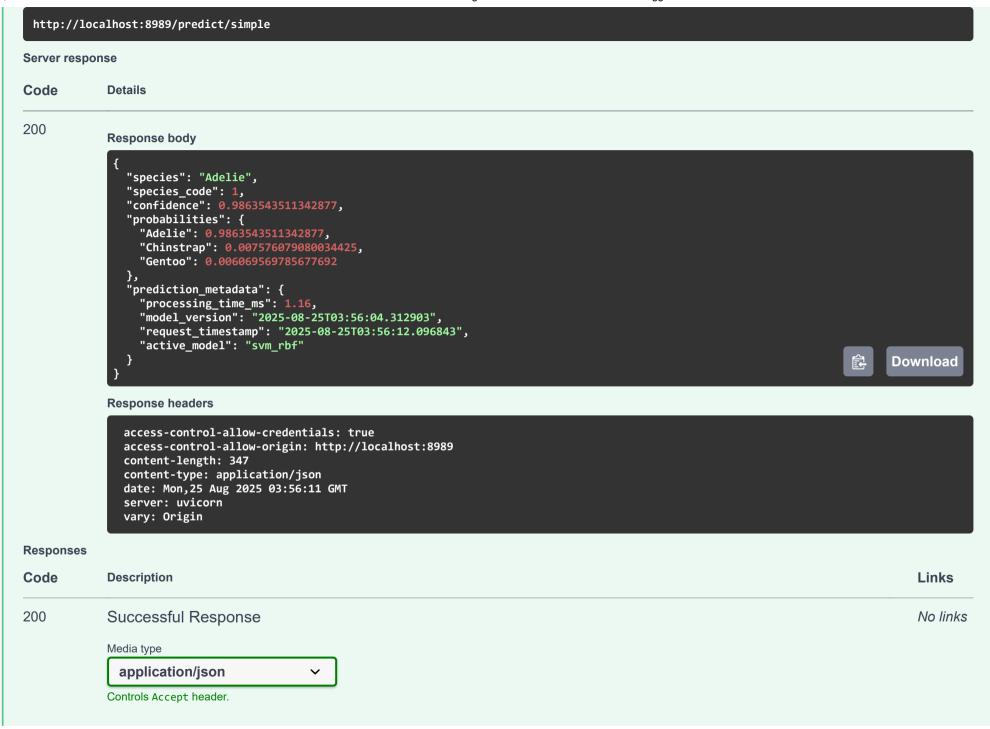
**Execute** Clear

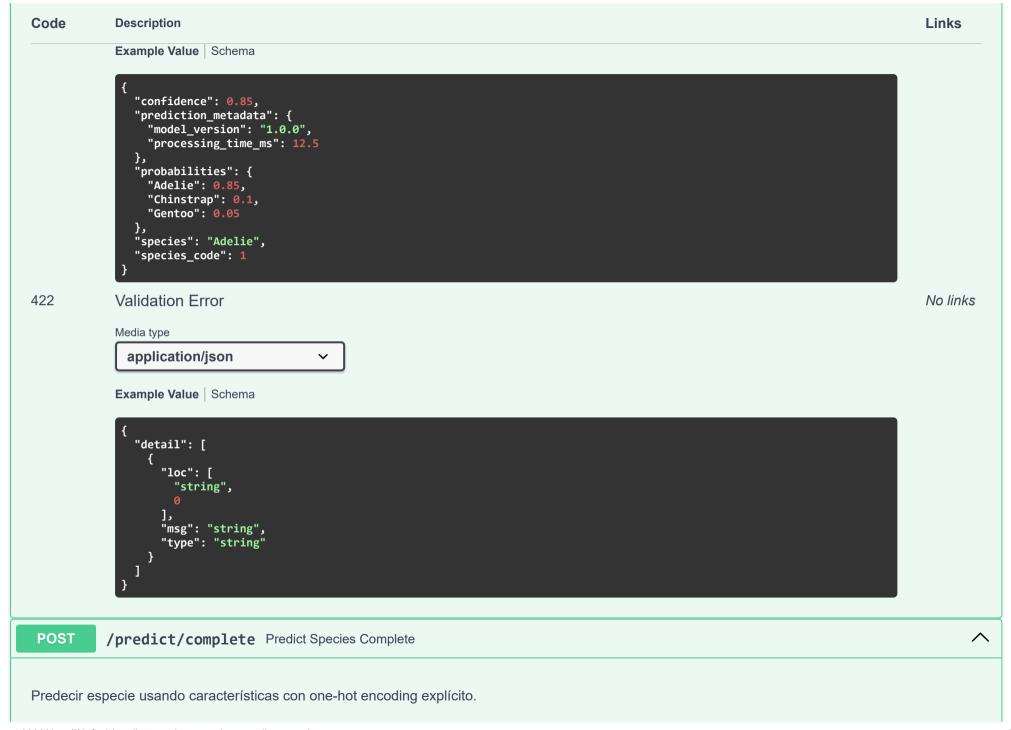
## Responses

#### Curl

```
curl -X 'POST' \
    'http://localhost:8989/predict/simple' \
    -H 'accept: application/json' \
    -H 'Content-Type: application/json' \
    -d '{
        "bill_depth_mm": 18.7,
        "bill_length_mm": 39.1,
        "body_mass_g": 3750,
        "flipper_length_mm": 181,
        "island": "Torgersen",
        "sex": "Male",
        "year": 2007
}'
```

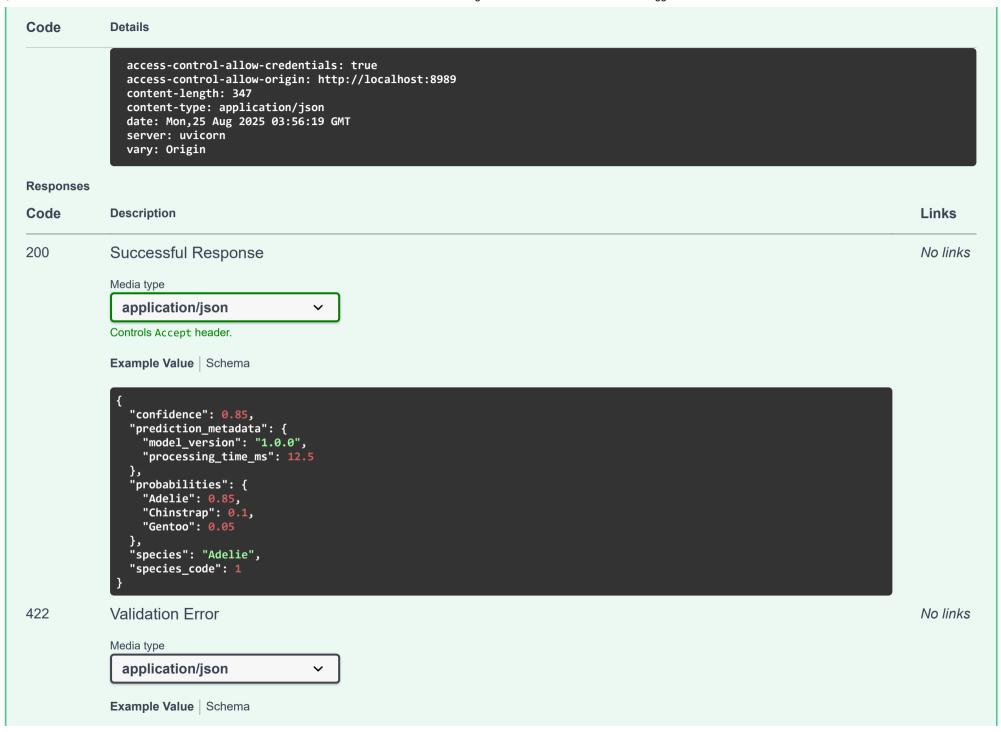
**Request URL** 





Este endpoint está diseñado para integraciones avanzadas donde el cliente prefiere manejar la codificación categórica directamente, proporcionando mayor control sobre la entrada al modelo. **Parameters** Cancel No parameters Request body required application/json ~ Edit Value | Schema "bill\_depth\_mm": 18.7, "bill\_length\_mm": 39.1, "body\_mass\_g": 3750, "flipper\_length\_mm": 181, "island\_Biscoe": 0, "island\_Dream": 0, "island\_Torgersen": 1, "sex\_female": 0, "sex\_male": 1, "year": 2007 1. Clear **Execute** Responses

```
Curl
 curl -X 'POST' \
   'http://localhost:8989/predict/complete' \
  -H 'accept: application/json' \
  -H 'Content-Type: application/json' \
  -d '{
  "bill depth mm": 18.7,
  "bill length_mm": 39.1,
  "body_mass_g": 3750,
  "flipper_length_mm": 181,
  "island Biscoe": 0,
  "island_Dream": 0,
  "island Torgersen": 1,
  "sex_female": 0,
  "sex_male": 1,
  "year": 2007
Request URL
 http://localhost:8989/predict/complete
Server response
Code
             Details
200
             Response body
                "species": "Adelie",
                "species_code": 1,
                "confidence": 0.9863543511342877,
                "probabilities": {
                  "Adelie": 0.9863543511342877,
                 "Chinstrap": 0.007576079080034425,
                 "Gentoo": 0.006069569785677692
                "prediction_metadata": {
                  "processing_time_ms": 0.94,
                  "model_version": "2025-08-25T03:56:04.312903",
                 "request_timestamp": "2025-08-25T03:56:20.067817",
                 "active_model": "svm_rbf"
                                                                                                                                    Download
```



```
Code Description

{

"detail": [

"loc": [

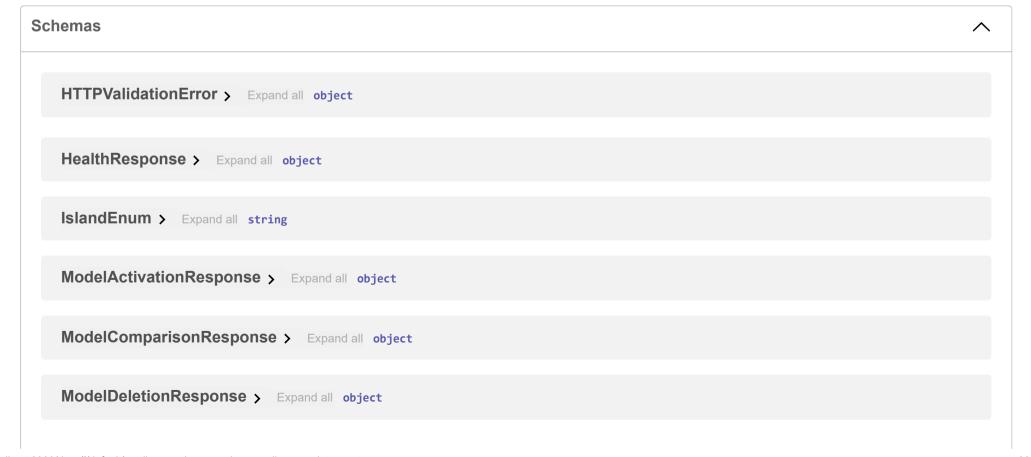
"string",

"string",

"type": "string"

}

}
```



ModelInfoResponse > Expand all object
ModelListItem > Expand all object
ModelsListResponse > Expand all object
MultiModelTrainingRequest > Expand all object
PenguinFeaturesComplete > Expand all object
Prodiction Beauches : Expand all object
PredictionResponse > Expand all object  SexEnum > Expand all string
SpeciesEnum > Expand all string
ValidationError > Expand all object
Tandation To Pand an Object