

Swarm Intelligence Cup Beta - Submission Guidelines

Lab42*

Version 0.1

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Introduction

Participants in the Swarm Intelligence Cup are tasked with creating a behavior script for a swarm of agents. Each script must contain a main function that executes whenever an agent takes its turn. The scripts will compete against each other using the sic42 package to determine the most effective swarm behavior.

^{*}https://lab42.global/sic/

Please consult the documentation ¹ of the sic42 package to get started and for more information about the agent input, output and the possible actions.

1 Naming Conventions

• Each script should be named after the team's registered name. This name will be used to identify your team and your script in the competition.

2 sic42 Package Version

- Scripts must be compatible with the newest version of the sic42 package
 that was available on the Sunday before the next training or competition
 week.
- The package version used for validation will be the one available on the preceding Sunday. For example, if version 0.3.0 is the latest on Sunday, your script must be compatible with version 0.3.0 for submissions in the following week.

3 Python Package Usage

- You can find a list of the available packages in App. A. In short, those are
 the packages available in the Kaggle Python Docker image ² basically
 any pre-installed package you are using on Kaggle should be in this list.
- If additional packages are needed, a request for inclusion must be submitted and approved.

4 File Writing Restrictions

- Scripts are only permitted to write to the agent_output.json file.
- Direct communication between agents or circumventing memory restrictions by writing to files other than agent_output.json is strictly prohibited.

¹https://sic.lab42.global

²The image can be found here: https://github.com/Kaggle/docker-python. On our GitHub repository you will also find a development container that can be used to set up the same environment we use for our evaulation (https://github.com/lab42-global/sic42).

5 Tournament Infrastructure

 \bullet The tournament will be conducted on a Google N1-standard-4 series VM with 4 vCPU's and 15GB RAM $^3.$ There will be no GPU available until further notice.

6 Time Budget

- Each swarm is allocated a limited time budget per game.
- The time limit formula is:

 $time\ limit = time_multiplier \times nr.\ of\ agents\ at\ spawn \times nr.\ of\ timesteps$

- The current *time_multiplier* is set to 0.1.
- Once the time budget is depleted, the agents of that swarm will be "frozen" and cannot execute any further actions during that game.

7 Game Parameter Ranges

- The parameters governing the games are variable and will be based on values close to those set in the deathmatch_config.json file, which can be found within the package and on the repository.
- Exact parameter values will not be disclosed. This ensures that swarms which are robust to changes in the game environment parameters are more likely to succeed.
- Participants are encouraged to design their swarms to adapt to a range of scenarios rather than optimizing for a single, fixed set of parameters.
- It is recommended that participants frequently test their scripts with varying parameters to ensure adaptability and robustness of their swarms.

8 Sharing Progress

- Participants are permitted and encouraged to share their progress, techniques, and experiences with others throughout the duration of the competition.
- Sharing is intended to foster a collaborative environment and community engagement, leading to collective growth and learning. We have a dedicated channel on the Lab42 Discord server for discussions.

 $^{^3 \}verb|https://cloud.google.com/compute/docs/general-purpose-machines \#n1_machines \#n1_machines$

9 Submission Rights and Licensing

- By submitting their scripts, participants agree to grant the organizers the rights to use, modify, and publish their scripts.
- All submitted scripts will be made available under the Apache 2.0 license, which allows for both commercial use and distribution, provided that the original work is properly credited and derivative works are licensed under the same terms.

A Available Python packages

Table 1: List of Installed Packages

| Package Name | Version |
|---------------|----------------|
| Babel | 2.12.1 |
| Boruta | 0.3 |
| CVXcanon | 0.1.2 |
| Cartopy | 0.22.0 |
| Cython | 0.29.35 |
| Delorean | 1.0.0 |
| Deprecated | 1.2.14 |
| Fiona | 1.9.4.post 1 |
| Geohash | 1.0 |
| GitPython | 3.1.31 |
| Gymnasium | 0.26.3 |
| ImageHash | 4.3.1 |
| Janome | 0.5.0 |
| Jinja2 | 3.1.2 |
| Levenshtein | 0.21.1 |
| LunarCalendar | 0.0.9 |
| Mako | 1.2.4 |
| Markdown | 3.4.3 |
| MarkupSafe | 2.1.3 |
| Pillow | 9.5.0 |
| PuLP | 2.7.0 |
| PyArabic | 0.6.15 |
| PyAstronomy | 0.19.0 |
| PyJWT | 2.7.0 |
| PyMeeus | 0.5.12 |
| PySocks | 1.7.1 |
| PyUpSet | 0.1.1.post 7 |
| PyWavelets | 1.4.1 |
| PyYAML | 6.0 |

| Package Name | Version |
|----------------------|------------------------|
| Pygments | 2.15.1 |
| Pympler | 1.0.1 |
| QtPy | 2.4.0 |
| Rtree | 1.0.1 |
| SQLAlchemy | 2.0.17 |
| SecretStorage | 3.3.3 |
| Send2Trash | 1.8.2 |
| Shapely | $1.8.5.\mathrm{post1}$ |
| SimpleITK | 2.2.1 |
| TPOT | 0.12.1 |
| Theano | 1.0.5 |
| Theano-PyMC | 1.1.2 |
| Unidecode | 1.3.6 |
| Wand | 0.6.11 |
| Wordbatch | 1.4.9 |
| absl-py | 1.4.0 |
| accelerate | 0.22.0 |
| | |
| access | 1.1.9 |
| affine | 2.4.0 |
| aiobotocore | 2.5.4 |
| aiofiles | 22.1.0 |
| aiohttp | 3.8.4 |
| aiohttp-cors | 0.7.0 |
| aioitertools | 0.11.0 |
| aiorwlock | 1.3.0 |
| aiosignal | 1.3.1 |
| aiosqlite | 0.19.0 |
| albumentations | 1.3.1 |
| alembic | 1.12.0 |
| altair | 5.1.1 |
| annoy | 1.17.3 |
| ansiwrap | 0.8.4 |
| anyio | 3.7.0 |
| apache-beam | 2.46.0 |
| aplus | 0.11.0 |
| appdirs | 1.4.4 |
| argon2-cffi | 21.3.0 |
| argon2-cffi-bindings | 21.2.0 |
| array-record | 0.4.0 |
| arrow | 1.2.3 |
| arviz | 0.12.1 |
| astroid | 2.15.6 |
| | 5.3.2 |
| astropy | |
| asttokens | 2.2.1 |

| Package Name | Version |
|-------------------------------|--------------------|
| astunparse | 1.6.3 |
| async-timeout | 4.0.2 |
| atpublic | 4.0 |
| attrs | 23.1.0 |
| audioread | 3.0.0 |
| autopep8 | 2.0.4 |
| backcall | 0.2.0 |
| backoff | 2.2.1 |
| backports.functools-lru-cache | 1.6.4 |
| bayesian-optimization | 1.4.3 |
| bayespy | 0.5.26 |
| beatrix-jupyterlab | 2023.621.222118 |
| beautifulsoup4 | 4.12.2 |
| bidict | 0.22.1 |
| biopython | 1.81 |
| blake3 | 0.2.1 |
| bleach | 6.0.0 |
| blessed | 1.20.0 |
| blinker | 1.6.2 |
| blis | 0.7.10 |
| blosc2 | 2.0.0 |
| bokeh | 3.2.2 |
| boltons | 23.0.0 |
| boto3 | 1.26.100 |
| botocore | 1.20.100 $1.31.17$ |
| | 0.4.1 |
| bq-helper | |
| bqplot | 0.12.40 |
| branca | 0.6.0 |
| brewer2mpl | 1.4.1 |
| brotlipy | 0.7.0 |
| cachetools | 4.2.4 |
| catalogue | 2.0.9 |
| catalyst | 22.4 |
| catboost | 1.2.1 |
| category-encoders | 2.6.2 |
| certifi | 2023.7.22 |
| cesium | 0.12.1 |
| cffi | 1.15.1 |
| cftime | 1.6.2 |
| charset-normalizer | 3.1.0 |
| chex | 0.1.82 |
| cleverhans | 4.0.0 |
| click | 8.1.7 |
| click-plugins | 1.1.1 |

| Package Name | Version |
|-------------------------|---------------|
| cligj | 0.7.2 |
| cloud-tpu-client | 0.10 |
| cloud-tpu-profiler | 2.4.0 |
| cloudpickle | 2.2.1 |
| cmaes | 0.10.0 |
| cmdstanpy | 1.1.0 |
| cmudict | 1.0.13 |
| colorama | 0.4.6 |
| colorcet | 3.0.1 |
| colorful | 0.5.5 |
| colorlog | 6.7.0 |
| colorlover | 0.3.0 |
| comm | 0.1.3 |
| conda | 23.7.3 |
| conda-content-trust | 0+unknown |
| conda-package-handling | 2.0.2 |
| conda-package-streaming | 0.8.0 |
| confection | 0.1.1 |
| contextily | 1.3.0 |
| contourpy | 1.1.0 |
| convertdate | 2.4.0 |
| crcmod | 1.7 |
| cryptography | 38.0.4 |
| cufflinks | 0.17.3 |
| cycler | 0.11.0 |
| cymem | 2.0.7 |
| cysignals | 1.11.2 |
| cytoolz | 0.12.2 |
| daal | 2023.2.1 |
| daal4py | 2023.2.1 |
| dacite | 1.8.1 |
| dask | 2023.9.0 |
| dataclasses-json | 0.6.0 |
| datasets | 2.1.0 |
| datashader | 0.15.2 |
| datashape | 0.5.2 |
| datatile | 1.0.3 |
| db-dtypes | 1.1.1 |
| deap | 1.4.1 |
| debugpy | 1.6.7 |
| decorator | 5.1.1 |
| defusedxml | 0.7.1 |
| deprecat | 2.1.1 |
| deprecation | 2.1.1 $2.1.0$ |

| Package Name | Version |
|---------------------------------|---------------|
| descartes | 1.1.0 |
| dill | 0.3.7 |
| dipy | 1.7.0 |
| distlib | 0.3.6 |
| distributed | 2023.9.0 |
| dm-tree | 0.1.8 |
| docker | 6.1.3 |
| docker-pycreds | 0.4.0 |
| docopt | 0.6.2 |
| docstring-parser | 0.15 |
| docstring-to-markdown | 0.12 |
| docutils | 0.20.1 |
| earthengine-api | 0.1.367 |
| easydict | 1.10 |
| easyocr | 1.7.1 |
| ecos | 2.0.12 |
| eli5 | 0.13.0 |
| emoji | 2.8.0 |
| en-core-web-lg | 3.6.0 |
| en-core-web-sm | 3.6.0 |
| entrypoints | 0.4 |
| ephem | 4.1.4 |
| esda | 2.5.0 |
| essentia | 2.1b6.dev1034 |
| et-xmlfile | 1.1.0 |
| etils | 1.3.0 |
| exceptiongroup | 1.1.1 |
| | 1.2.0 |
| executing explainable-ai-sdk | 1.3.3 |
| fastai | 2.7.12 |
| | 0.98.0 |
| fastapi | |
| fastavro | 1.7.4 |
| fastcore | 1.5.29 |
| fastdownload | 0.0.7 |
| fasteners | 0.18 |
| fastjsonschema | 2.17.1 |
| fastprogress | 1.0.3 |
| fasttext | 0.9.2 |
| fbpca | 1.0 |
| feather-format | 0.4.1 |
| featuretools | 1.27.0 |
| filelock | 3.12.2 |
| fitter | 1.6.0 |
| flake8 | 6.0.0 |

| Package Name | Version |
|--------------------------------|----------|
| flashtext | 2.7 |
| flask | 2.3.3 |
| flatbuffers | 23.5.26 |
| flax | 0.7.2 |
| flit-core | 3.9.0 |
| folium | 0.14.0 |
| fonttools | 4.40.0 |
| fqdn | 1.5.1 |
| frozendict | 2.3.8 |
| frozenlist | 1.3.3 |
| fsspec | 2023.9.0 |
| funcy | 2.0 |
| fury | 0.9.0 |
| future | 0.18.3 |
| fuzzywuzzy | 0.18.0 |
| gast | 0.4.0 |
| gatspy | 0.3 |
| gcsfs | 2023.6.0 |
| gensim | 4.3.2 |
| geographiclib | 2.0 |
| geojson | 3.0.1 |
| geopandas | 0.13.2 |
| geoplot | 0.5.1 |
| ~ - | 2.4.0 |
| geopy geoviews | 1.10.1 |
| <u> </u> | 0.11.5 |
| ggplot | 2.3.4 |
| giddy | |
| gitdb | 4.0.10 |
| google-api-core | 2.11.1 |
| google-api-python-client | 2.97.0 |
| google-apitools | 0.5.31 |
| google-auth | 2.20.0 |
| google-auth-httplib2 | 0.1.0 |
| google-auth-oauthlib | 1.0.0 |
| google-cloud-aiplatform | 0.6.0a1 |
| google-cloud-artifact-registry | 1.8.1 |
| google-cloud-automl | 1.0.1 |
| google-cloud-bigquery | 2.34.4 |
| google-cloud-bigtable | 1.7.3 |
| google-cloud-core | 2.3.2 |
| google-cloud-datastore | 1.15.5 |
| google-cloud-dlp | 3.12.1 |
| google-cloud-language | 2.11.0 |
| google-cloud-monitoring | 2.15.0 |

| Package Name | Version |
|---------------------------------|----------|
| google-cloud-pubsub | 2.17.1 |
| google-cloud-pubsublite | 1.8.2 |
| google-cloud-recommendations-ai | 0.7.1 |
| google-cloud-resource-manager | 1.10.1 |
| google-cloud-spanner | 3.36.0 |
| google-cloud-storage | 1.44.0 |
| google-cloud-translate | 3.12.0 |
| google-cloud-videointelligence | 2.11.3 |
| google-cloud-vision | 2.8.0 |
| google-crc32c | 1.5.0 |
| google-pasta | 0.2.0 |
| google-resumable-media | 2.5.0 |
| googleapis-common-protos | 1.59.1 |
| gplearn | 0.4.2 |
| gpustat | 1.0.0 |
| gpxpy | 1.5.0 |
| graphviz | 0.20.1 |
| greenlet | 2.0.2 |
| grpc-google-iam-v1 | 0.12.6 |
| grpcio | 1.51.3 |
| grpcio-status | 1.46.3 |
| gviz-api | 1.10.0 |
| gym | 0.26.2 |
| gym-notices | 0.0.8 |
| gymnasium-notices | 0.0.1 |
| h11 | 0.14.0 |
| h2o | 3.42.0.3 |
| h5py | 3.9.0 |
| haversine | 2.8.0 |
| hdfs | 2.7.0 |
| hep-ml | 0.7.2 |
| hijri-converter | 2.3.1 |
| hmmlearn | 0.3.0 |
| holidays | 0.24 |
| holoviews | 1.17.1 |
| hpsklearn | 0.1.0 |
| html5lib | 1.1 |
| htmlmin | 0.1.12 |
| httplib2 | 0.21.0 |
| httptools | 0.6.0 |
| huggingface-hub | 0.16.4 |
| humanize | 4.8.0 |
| hunspell | 0.5.5 |
| husl | 4.0.3 |

| | Version |
|---------------------|----------|
| hydra-slayer | 0.4.1 |
| hyperopt | 0.2.7 |
| hypertools | 0.8.0 |
| ibis-framework | 6.2.0 |
| idna | 3.4 |
| igraph | 0.10.6 |
| imagecodecs | 2023.9.4 |
| imageio | 2.31.1 |
| imbalanced-learn | 0.11.0 |
| imgaug | 0.4.0 |
| importlib-metadata | 6.7.0 |
| importlib-resources | 5.12.0 |
| inequality | 1.0.0 |
| iniconfig | 2.0.0 |
| ipydatawidgets | 4.3.5 |
| ipykernel | 6.23.3 |
| ipyleaflet | 0.17.3 |
| ipympl | 0.7.0 |
| ipython | 8.14.0 |
| ipython-genutils | 0.2.0 |
| ipython-sql | 0.5.0 |
| ipyvolume | 0.6.3 |
| ipyvue | 1.10.0 |
| ipyvuetify | 1.8.10 |
| ipywebrtc | 0.6.0 |
| ipywidgets | 7.7.1 |
| isoduration | 20.11.0 |
| isort | 5.12.0 |
| isoweek | 1.3.3 |
| itsdangerous | 2.1.2 |
| jaraco.classes | 3.2.3 |
| jax | 0.4.13 |
| jaxlib | 0.4.13 |
| jedi | 0.18.2 |
| jeepney | 0.8.0 |
| jieba | 0.42.1 |
| jmespath | 1.0.1 |
| joblib | 1.3.2 |
| json5 | 0.9.14 |
| jsonpatch | 1.32 |
| jsonpointer | 2.0 |
| jsonschema | 4.17.3 |
| jupyter-client | 7.4.9 |
| jupyter-console | 6.6.3 |

| Package Name | Version |
|---------------------------------------|-----------------------|
| jupyter-core | 5.3.1 |
| jupyter-events | 0.6.3 |
| jupyter-http-over-ws | 0.0.8 |
| jupyter-lsp | 1.5.1 |
| jupyter-server | 2.6.0 |
| jupyter-server-fileid | 0.9.0 |
| jupyter-server-mathjax | 0.2.6 |
| jupyter-server-proxy | 4.0.0 |
| jupyter-server-terminals | 0.4.4 |
| jupyter-server-ydoc | 0.8.0 |
| jupyter-ydoc | 0.2.5 |
| jupyterlab | 3.6.5 |
| jupyterlab-git | 0.41.0 |
| jupyterlab-lsp | 4.2.0 |
| jupyterlab-pygments | 0.2.2 |
| jupyterlab-server | 2.23.0 |
| jupyterlab-widgets | 3.0.7 |
| jupytext | 1.14.6 |
| kaggle | 1.5.16 |
| kaggle-environments | 1.12.0 |
| keras | 2.12.0 |
| keras-core | 0.1.5 |
| keras-cv | 0.6.1 |
| keras-nlp | 0.6.1 |
| keras-tuner | 1.3.5 |
| keyring | 24.2.0 |
| keyrings.google-artifactregistry-auth | 1.1.2 |
| kfp | $\frac{1.1.2}{2.0.1}$ |
| kfp-pipeline-spec | 0.2.2 |
| kfp-server-api | 2.0.0 |
| kiwisolver | 1.4.4 |
| | 2.0.1 |
| kmapper kmodes | 0.12.2 |
| korean-lunar-calendar | 0.12.2 $0.3.1$ |
| | 0.7.0 |
| kornia | |
| kt-legacy | 1.0.5 |
| kubernetes | 26.1.0 |
| langcodes | 3.3.0 |
| langid | 1.1.6 |
| lazy-loader | 0.2 |
| lazy-object-proxy | 1.9.0 |
| learntools | 0.3.4 |
| leven | 1.0.4 |
| libclang | 16.0.0 |

| Package Name | Version |
|--------------------------|------------------|
| libmambapy | 1.5.1 |
| libpysal | 4.7.0 |
| librosa | 0.10.1 |
| lightgbm | 3.3.2 |
| lightning-utilities | 0.9.0 |
| lime | 0.2.0.1 |
| line-profiler | 4.1.1 |
| linkify-it-py | 2.0.2 |
| llvmlite | 0.40.1 |
| lml | 0.1.0 |
| locket | 1.0.0 |
| lxml | 4.9.3 |
| lz4 | 4.3.2 |
| mamba | 1.5.1 |
| mapclassify | 2.6.0 |
| marisa-trie | 1.0.0 |
| markdown-it-py | 2.2.0 |
| markovify | 0.9.4 |
| marshmallow | 3.20.1 |
| matplotlib | 3.7.2 |
| matplotlib-inline | 0.1.6 |
| matplotlib-venn | 0.11.9 |
| mccabe | 0.7.0 |
| | 0.4.0 |
| mdit-py-plugins mdurl | $0.4.0 \\ 0.1.2$ |
| | |
| memory-profiler | 0.61.0 |
| mercantile | 1.2.1 |
| mgwr · · | 2.1.2 |
| missingno | 0.5.2 |
| mistune | 0.8.4 |
| mizani | 0.10.0 |
| ml-dtypes | 0.2.0 |
| mlcrate | 0.2.0 |
| mlens | 0.2.3 |
| mlxtend | 0.22.0 |
| mmh3 | 4.0.1 |
| mne | 1.5.0 |
| mnist | 0.2.2 |
| mock | 5.1.0 |
| momepy | 0.6.0 |
| more-itertools | 9.1.0 |
| mpld3 | 0.5.9 |
| mpmath | 1.3.0 |
| msgpack | 1.0.5 |

| Package Name | Version |
|------------------------------------|-------------------|
| msgpack-numpy | 0.4.8 |
| multidict | 6.0.4 |
| multimethod | 1.9.1 |
| multipledispatch | 1.0.0 |
| multiprocess | 0.70.15 |
| munkres | 1.1.4 |
| murmurhash | 1.0.9 |
| mypy-extensions | 1.0.0 |
| namex | 0.0.7 |
| nb-conda | 2.2.1 |
| nb-conda-kernels | 2.3.1 |
| nbclassic | 1.0.0 |
| nbclient | 0.5.13 |
| nbconvert | 6.4.5 |
| nbdime | 3.2.0 |
| nbformat | 5.9.0 |
| nest-asyncio | 1.5.6 |
| netCDF4 | 1.6.4 |
| networkx | 3.1 |
| nibabel | 5.1.0 |
| nilearn | 0.10.1 |
| ninja | 1.11.1 |
| nltk | 3.2.4 |
| nose | 1.3.7 |
| notebook | 6.5.4 |
| notebook-executor | 0.2 |
| notebook executor notebook-shim | 0.2.3 |
| numba | 0.57.1 |
| numexpr | 2.8.5 |
| numpy | 1.23.5 |
| nvidia-ml-py | 11.495.46 |
| oauth2client | 4.1.3 |
| oauthlib | 3.2.2 |
| objsize | 0.6.1 |
| odfpy | 1.4.1 |
| olefile | 0.46 |
| onnx | 1.14.1 |
| opencensus | 0.11.2 |
| opencensus-context | 0.11.2 |
| opency-contrib-python | 4.8.0.76 |
| opency-python | 4.8.0.76 |
| opency-python-headless | 4.8.0.76 |
| | 4.8.0.70 3.1.2 |
| openpyxl | |
| openslide-python | 1.3.0 |

| Package Name | Version |
|------------------------------------------|----------|
| opentelemetry-api | 1.18.0 |
| opentelemetry-exporter-otlp | 1.18.0 |
| opentelemetry-exporter-otlp-proto-common | 1.18.0 |
| opentelemetry-exporter-otlp-proto-grpc | 1.18.0 |
| opentelemetry-exporter-otlp-proto-http | 1.18.0 |
| opentelemetry-proto | 1.18.0 |
| opentelemetry-sdk | 1.18.0 |
| opentelemetry-semantic-conventions | 0.39b0 |
| opt-einsum | 3.3.0 |
| optax | 0.1.7 |
| optuna | 3.3.0 |
| orbax-checkpoint | 0.3.5 |
| orderedmultidict | 1.0.1 |
| orjson | 3.9.1 |
| ortools | 9.4.1874 |
| osmnx | 1.1.1 |
| overrides | 6.5.0 |
| packaging | 21.3 |
| pandas | 2.0.3 |
| pandas-datareader | 0.10.0 |
| pandas-profiling | 3.6.6 |
| pandas-summary | 0.2.0 |
| pandasql | 0.7.3 |
| pandocfilters | 1.5.0 |
| - | 1.2.2 |
| panel | |
| papermill | 2.4.0 |
| param | 1.13.0 |
| parso | 0.8.3 |
| parsy | 2.1 |
| partd | 1.4.0 |
| path | 16.7.1 |
| path.py | 12.5.0 |
| pathos | 0.3.1 |
| pathtools | 0.1.2 |
| pathy | 0.10.2 |
| patsy | 0.5.3 |
| pdf2image | 1.16.3 |
| pexpect | 4.8.0 |
| phik | 0.12.3 |
| pickleshare | 0.7.5 |
| pip | 23.1.2 |
| pkgutil-resolve-name | 1.3.10 |
| platformdirs | 3.10.0 |
| plotly | 5.15.0 |

| Package Name | Version |
|-------------------|-------------------|
| plotly-express | 0.4.1 |
| plotnine | 0.10.1 |
| pluggy | 1.0.0 |
| pointpats | 2.3.0 |
| polars | 0.19.2 |
| polyglot | 16.7.4 |
| pooch | 1.7.0 |
| pox | 0.3.3 |
| ppca | 0.0.4 |
| ppft | 1.7.6.7 |
| preprocessing | 0.1.13 |
| preshed | 3.0.8 |
| prettytable | 3.8.0 |
| progressbar2 | 4.2.0 |
| prometheus-client | 0.17.0 |
| promise | 2.3 |
| prompt-toolkit | 3.0.38 |
| pronouncing | 0.2.0 |
| prophet | 1.1.1 |
| proto-plus | 1.22.3 |
| protobuf | 3.20.3 |
| psutil | 5.9.3 |
| ptyprocess | 0.7.0 |
| pudb | 2022.1.3 |
| pure-eval | 0.2.2 |
| py-cpuinfo | 9.0.0 |
| py-lz4framed | 0.14.0 |
| | 0.3.14 |
| py-spy | 0.3.14 $0.10.9.7$ |
| py4j | 3.2.2 |
| pyLDAvis | |
| pyOpenSSL | 23.2.0 |
| pyaml | 23.9.1 |
| pyarrow | 9.0.0 |
| pyasn1 | 0.4.8 |
| pyasn1-modules | 0.2.7 |
| pybind11 | 2.11.1 |
| pyclipper | 1.3.0.post4 |
| pycodestyle | 2.10.0 |
| pycolmap | 0.4.0 |
| pycosat | 0.6.4 |
| pycparser | 2.21 |
| pycryptodome | 3.18.0 |
| pyct | 0.5.0 |
| pydantic | 1.10.9 |

| Package Name | Version |
|--------------------|-----------------------|
| pydegensac | 0.1.2 |
| pydicom | 2.4.3 |
| pydocstyle | 6.3.0 |
| pydot | 1.4.2 |
| pydub | 0.25.1 |
| pyemd | 1.0.0 |
| pyerfa | 2.0.0.3 |
| pyexcel-io | 0.6.6 |
| pyexcel-ods | 0.6.0 |
| pyfasttext | 0.4.6 |
| pyflakes | 3.0.1 |
| pygame | 2.5.2 |
| pygltflib | 1.16.0 |
| pykalman | 0.9.5 |
| pylint | 2.17.5 |
| pymc3 | 3.11.5 |
| pymongo | 3.13.0 |
| pynndescent | 0.5.10 |
| pyocr | 0.8.3 |
| pyparsing | 3.0.9 |
| pypdf | 3.15.5 |
| pyproj | 3.6.0 |
| pyrsistent | 0.19.3 |
| pysal | 23.7 |
| pyshp | 2.3.1 |
| pytesseract | 0.3.10 |
| pytest | 7.4.1 |
| python-Levenshtein | 0.21.1 |
| python-bidi | $0.21.1 \\ 0.4.2$ |
| | $\frac{0.4.2}{2.8.2}$ |
| python-dateutil | |
| python-dotenv | 1.0.0 |
| python-json-logger | 2.0.7 |
| python-louvain | 0.16 |
| python-lsp-jsonrpc | 1.0.0 |
| python-lsp-server | 1.7.4 |
| python-slugify | 8.0.1 |
| python-utils | 3.7.0 |
| pythreejs | 2.4.2 |
| pytoolconfig | 1.2.5 |
| pytorch-ignite | 0.4.12 |
| pytorch-lightning | 2.0.8 |
| pytz | 2023.3 |
| pyu2f | 0.1.5 |
| pyviz-comms | 3.0.0 |

| Package Name | Version |
|-------------------------------------|-----------------|
| pyzmq | 25.1.0 |
| qgrid | 1.3.1 |
| qtconsole | 5.4.4 |
| quantecon | 0.7.1 |
| quantities | 0.14.1 |
| qudida | 0.0.4 |
| randomgen | 1.23.1 |
| rapidfuzz | 3.2.0 |
| rasterio | 1.3.8 |
| rasterstats | 0.19.0 |
| ray | 2.5.1 |
| ray-cpp | 2.5.1 |
| regex | 2023.6.3 |
| requests | 2.31.0 |
| requests-oauthlib | 1.3.1 |
| requests-toolbelt | 0.10.1 |
| responses | 0.18.0 |
| retrying | 1.3.3 |
| rfc3339-validator | 0.1.4 |
| rfc3986-validator | 0.1.1 |
| rgf-python | 3.12.0 |
| rich | 13.4.2 |
| rope | 1.9.0 |
| rsa | 4.9 |
| ruamel-yaml-conda | 0.15.100 |
| ruamel.yaml | 0.17.32 |
| ruamel.yaml.clib | 0.2.7 |
| s2sphere | 0.2.5 |
| s3fs | 2023.9.0 |
| s3transfer | 0.6.2 |
| safetensors | 0.3.3 |
| scattertext | 0.1.19 |
| scikit-image | 0.21.0 |
| scikit-learn | 1.2.2 |
| scikit-learn-intelex | 2023.2.1 |
| scikit-multilearn | 0.2.0 |
| scikit-mutthearn scikit-optimize | 0.2.0 |
| scikit-plot | 0.3.7 |
| scikit-surprise | 1.1.3 |
| _ | 1.1.3 1.11.2 |
| scipy seaborn | 0.12.2 |
| | 1.0 |
| segment-anything | |
| segregation | 2.5 |
| semver | 3.0.1 |

| Package Name | Version |
|------------------------|--------------------|
| sentencepiece | 0.1.99 |
| sentry-sdk | 1.30.0 |
| setproctitle | 1.3.2 |
| setuptools | 68.0.0 |
| setuptools-git | 1.2 |
| setuptools-scm | 7.1.0 |
| shap | 0.42.1 |
| simpervisor | 1.0.0 |
| simplejson | 3.19.1 |
| six | 1.16.0 |
| sklearn-pandas | 2.2.0 |
| slicer | 0.0.7 |
| smart-open | 6.3.0 |
| smhasher | 0.150.1 |
| smmap | 5.0.0 |
| sniffio | 1.3.0 |
| snowballstemmer | 2.2.0 |
| snuggs | 1.4.7 |
| sortedcontainers | 2.4.0 |
| soundfile | 0.12.1 |
| soupsieve | 2.3.2.post1 |
| soxr | 0.3.6 |
| spacy | 3.6.1 |
| spacy-legacy | 3.0.12 |
| spacy-loggers | 1.0.4 |
| spaghetti | 1.7.4 |
| spectral | 0.23.1 |
| spglm | 1.0.8 |
| sphinx-rtd-theme | 0.2.4 |
| spint | 1.0.7 |
| splot | 1.1.5.post1 |
| spopt | 0.5.0 |
| spreg | 1.3.2 |
| spvcm | 0.3.0 |
| sqlglot | 17.16.2 |
| sqlparse | 0.4.4 |
| squarify | 0.4.3 |
| srsly | 2.4.7 |
| stack-data | 0.6.2 |
| starlette | 0.0.2 $0.27.0$ |
| statsmodels | 0.27.0 |
| | 1.0.1 |
| stemming stop-words | 2018.7.23 |
| - | 2018.7.23 1.1.2 |
| stopit | 1.1.2 |

| Package Name | Version |
|------------------------------|-----------------|
| stumpy | 1.12.0 |
| sympy | 1.12 |
| tables | 3.8.0 |
| tabulate | 0.9.0 |
| tangled-up-in-unicode | 0.2.0 |
| tbb | 2021.10.0 |
| tblib | 2.0.0 |
| tenacity | 8.2.2 |
| tensorboard | 2.12.3 |
| tensorboard-data-server | 0.7.1 |
| tensorboard-plugin-profile | 2.13.0 |
| tensorboardX | 2.6 |
| tensorflow | 2.12.0 |
| tensorflow-addons | 0.21.0 |
| tensorflow-cloud | 0.1.16 |
| tensorflow-datasets | 4.9.2 |
| tensorflow-decision-forests | 1.4.0 |
| tensorflow-estimator | 2.12.0 |
| tensorflow-bub | 0.12.0 |
| tensorflow-io | 0.12.0 |
| tensorflow-io-gcs-filesystem | 0.32.0 $0.32.0$ |
| tensorflow-metadata | 0.32.0 |
| | 0.14.0 |
| tensorflow-probability | 2.12.1 |
| tensorflow-serving-api | 2.12.1 $2.12.1$ |
| tensorflow-text | |
| tensorflow-transform | 0.14.0 |
| tensorflowjs | 3.15.0 |
| tensorpack | 0.11 |
| tensorstore | 0.1.41 |
| termcolor | 2.3.0 |
| terminado | 0.17.1 |
| testpath | 0.6.0 |
| text-unidecode | 1.3 |
| textblob | 0.17.1 |
| texttable | 1.6.7 |
| textwrap3 | 0.9.2 |
| thinc | 8.1.12 |
| threadpoolctl | 3.1.0 |
| tifffile | 2023.4.12 |
| timm | 0.9.7 |
| tinycss2 | 1.2.1 |
| tobler | 0.11.1 |
| tokenizers | 0.13.3 |
| toml | 0.10.2 |

| Package Name | Version |
|--------------------------------|------------|
| tomli | 2.0.1 |
| tomlkit | 0.12.1 |
| toolz | 0.12.0 |
| torch | 2.0.0+cpu |
| torchaudio | 2.0.1+cpu |
| torchdata | 0.6.0 |
| torchinfo | 1.8.0 |
| torchmetrics | 1.1.1 |
| torchtext | 0.15.1+cpu |
| torchvision | 0.15.1+cpu |
| tornado | 6.3.2 |
| tqdm | 4.66.1 |
| traceml | 1.0.8 |
| traitlets | 5.9.0 |
| traittypes | 0.2.1 |
| transformers | 4.33.0 |
| trueskill | 0.4.5 |
| tsfresh | 0.20.1 |
| typeguard | 2.13.3 |
| typer | 0.9.0 |
| typing-extensions | 4.6.3 |
| typing-inspect | 0.9.0 |
| typing-utils | 0.3.0 |
| tzdata | 2023.3 |
| tzlocal | 5.0.1 |
| uc-micro-py | 1.0.2 |
| ujson | 5.8.0 |
| umap-learn | 0.5.3 |
| unicodedata2 | 15.0.0 |
| unicodedata2 update-checker | 0.18.0 |
| uri-template | 1.3.0 |
| uritemplate | 3.0.1 |
| urllib3 | 1.26.15 |
| urwid | 2.1.2 |
| urwid-readline | 0.13 |
| uvicorn | 0.22.0 |
| uvloop | 0.17.0 |
| vaex | 4.17.0 |
| vaex- vaex-astro | 0.9.3 |
| vaex-astro vaex-core | 4.17.1 |
| vaex-core vaex-hdf5 | 0.14.1 |
| vaex-jupyter | 0.8.2 |
| vaex-jupyter vaex-ml | 0.18.3 |
| vaex-mi vaex-server | 0.18.3 |

| Package Name | Version |
|--------------------|----------|
| vaex-viz | 0.5.4 |
| vecstack | 0.4.0 |
| virtualenv | 20.21.0 |
| visions | 0.7.5 |
| vowpalwabbit | 9.9.0 |
| vtk | 9.2.6 |
| wandb | 0.15.9 |
| wasabi | 1.1.2 |
| watchfiles | 0.20.0 |
| wavio | 0.0.7 |
| wcwidth | 0.2.6 |
| webcolors | 1.13 |
| webencodings | 0.5.1 |
| websocket-client | 1.6.0 |
| websockets | 11.0.3 |
| werkzeug | 2.3.7 |
| wfdb | 4.1.2 |
| whatthepatch | 1.0.5 |
| wheel | 0.40.0 |
| widgetsnbextension | 3.6.5 |
| witwidget | 1.8.1 |
| woodwork | 0.26.0 |
| wordcloud | 1.9.2 |
| wordsegment | 1.3.1 |
| wrapt | 1.14.1 |
| wurlitzer | 3.0.3 |
| xarray | 2023.8.0 |
| xarray-einstats | 0.6.0 |
| xgboost | 1.7.6 |
| xvfbwrapper | 0.2.9 |
| xxhash | 3.3.0 |
| xyzservices | 2023.7.0 |
| у-ру | 0.6.0 |
| yapf | 0.40.1 |
| yarl | 1.9.2 |
| ydata-profiling | 4.3.1 |
| yellowbrick | 1.5 |
| ypy-websocket | 0.8.4 |
| zict | 3.0.0 |
| zipp | 3.15.0 |
| zstandard | 0.19.0 |