

# uv - Distributing IA

Demi-journée IA

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IR en robotique humanoïde

# **INTRO**

- > A Python linter & formatter
- > replace all the others (black, isort, flake8, ...)
- > very fast (rust)
- > can (un)safely fix your code (further)
- > integrations (pre-commit, lsp, CI)
- > good defaults & lot of configuration options
- > 42 k★

- > A company to advance the python tooling ecosystem
- > Support ruff development
  - open source, permissive, built in the open
- > Create other tools:
  - rye
  - uv
  - ty

- > extends pip
  - don't lock you out of it
- > follows standard PEPs
- > will use your python
  - unless you need another
- > will isolate your env
  - unless you need system things
- > very fast (rust)

- > extends pip
  - don't lock you out of it
- > follows standard PEPs
- > will use your python
  - unless you need another
- > will isolate your env
  - unless you need system things
- > very fast (rust)
- > great dependency resolver
  - with clear messages
- > global cache
  - with deduplication
- > workspaces
- > uvx
- > 68 k 
- > listen to its community

# **STANDARDS**



```
[project]
name = "Your Project Name"
version = "0.1.0"
description = "Your Project Description"
readme = "README.md"
requires-python = ">=3.12"
dependencies = []
```

```
[build-system]
requires = ["uv_build>=0.8.14,<0.9.0"]
build-backend = "uv_build"
```

```
$ python -m venv .venv  
$ source .venv/bin/activate  
$ # Profit !
```

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$ source .venv/bin/activate
$ # Profit !
```

```
$ tree .venv
.venv
├── bin
│   ├── activate
│   ├── pip
│   └── python -> ../../bin/python
├── include/python3.12
├── lib/python3.12/site-packages
└── pyvenv.cfg
```

```
$ pipx install uv
```

```
$ pipx install uv
```

```
~/.local/share/pipx/venvs/uv
```

```
~/.local/bin/uv
```

```
$ pipx ensurepath
```

# **EXAMPLES**

```
$ uv init --lib
$ tree
pyproject.toml
README.md
src/
├── ia_lib/
│   ├── __init__.py
│   └── py.typed
```

```
$ uv init --lib
$ tree
pyproject.toml
README.md
src/
├── ia_lib/
│   ├── __init__.py
│   └── py.typed
```

```
[project]
name = "ia-lib"
version = "0.1.0"
description = "Some description"
readme = "README.md"
authors = [{
    name = "Guilhem Saurel",
    email = "gsaurel@laas.fr"
}]
requires-python = ">=3.13"
dependencies = []
```



```
$ uv init  
$ ls  
main.py  pyproject.toml  README.md
```

```
$ uv add httpx  
$ uv add --dev ruff  
$ uv add --optional view meshcat
```

# Add a dependency

```
$ uv add httpx
$ uv add --dev ruff
$ uv add --optional view meshcat
```

```
[project]
dependencies = [
    "httpx>=0.28.1",
]
[project.optional-dependencies]
view = [
    "meshcat>=0.3.2",
]
[dependency-groups]
dev = [
    "ruff>=0.11.13",
]
```

```
[[package]]
name = "anyio"
version = "4.9.0"
source = { registry = "https://pypi.org/simple" }
dependencies = [ { name = "idna" }, { name = "sniffio" }, ]
sdist = { url = "https://files.pythonhosted.org/packages/95/7d/4c1
bd541d4...97a106fc97a7313b105f840/anyio-4.9.0.tar.gz", hash =
"sha256:673c0c244e157886...5eda409e0c9840a028", size = 190949,
upload-time = "2025-03-17T00:02:54.77Z" }
wheels = [ { url = "https://files.pythonhosted.org/packages/a1/ee/
48ca1a7c89ffe...94acf8b8c408575bb/anyio-4.9.0-py3-none-any.whl", hash
= "sha2560a9c...4d93c", size = 100916, upload-time =
"2025-03-17T00:02:52.713Z" }, ]
```

```
[project.optional-dependencies]
cpu = [ "torch>=2.8.0" ]
cu129 = [ "torch>=2.8.0" ]
[[tool.uv.index]]
explicit = true
name = "pytorch-cpu"
url = "https://download.pytorch.org/whl/cpu"
[[tool.uv.index]]
explicit = true
name = "pytorch-cu129"
url = "https://download.pytorch.org/whl/cu129"
[tool.uv.sources]
torch = [
    {extra = "cpu", index = "pytorch-cpu", marker = "platform_system != 'Darwin'"},
    {extra = "cu129", index = "pytorch-cu129"}
]
```

```
#!/usr/bin/env -S uv run --script  
# /// script  
# dependencies = ["beautifulsoup4", "httpx"]  
# ///
```

```
import httpx  
from bs4 import BeautifulSoup
```

```
r = httpx.get("https://example.org")  
soup = BeautifulSoup(r.text, "html.parser")  
print(soup.h1)
```

```
FROM ros:jazzy
RUN apt update \
    && apt install -qy \
        pipx ros-jazzy-rclpy \
    && pipx install uv
ENV PATH=/root/.local/bin:$PATH
WORKDIR /ws
RUN uv init \
    && uv venv \
        --system-site-packages \
    && uv add torch
```

```
FROM ros:jazzy
RUN apt update \
  && apt install -qy \
    pipx ros-jazzy-rclpy \
  && pipx install uv
ENV PATH=/root/.local/bin:$PATH
WORKDIR /ws
RUN uv init \
  && uv venv \
    --system-site-packages \
  && uv add torch
```

```
$ uv run python
>>> import rclpy
>>> rclpy.__file__
'/opt/ros/jazzy/lib/python3.12/
site-packages/rclpy/__init__.py'
>>> import torch
>>> torch.__file__
'/ws/.venv/lib/python3.12/site-
packages/torch/__init__.py'
```



uv2nix

# QUESTIONS

# About this presentation

**Available at**

<https://homepages.laas.fr/gsaurel/>

<https://nim65s.github.io/>

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