EuroPython

2022 DUBLIN & REMOTE

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ENTERPRISE TECHNOLOGY MANAGEMENT

A Tale of two Kitchens

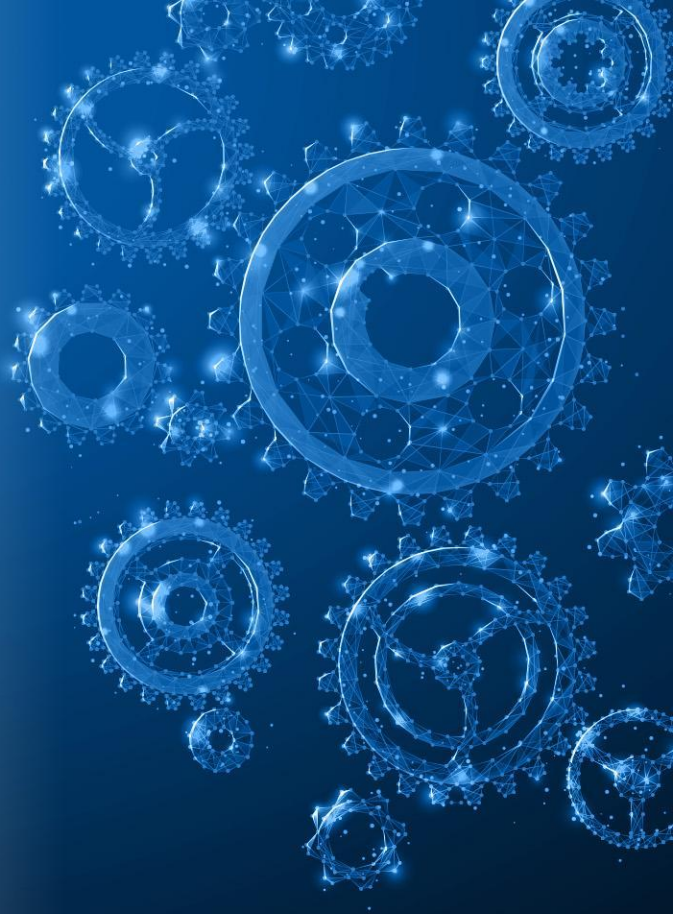
Hypermodernizing your Codebase

Christian Ledermann

EuroPython 14/07/2022

Overview

- What is Hypermodern Python
- Why Hypermodern Python
- How to hypermodernize your legacy Code



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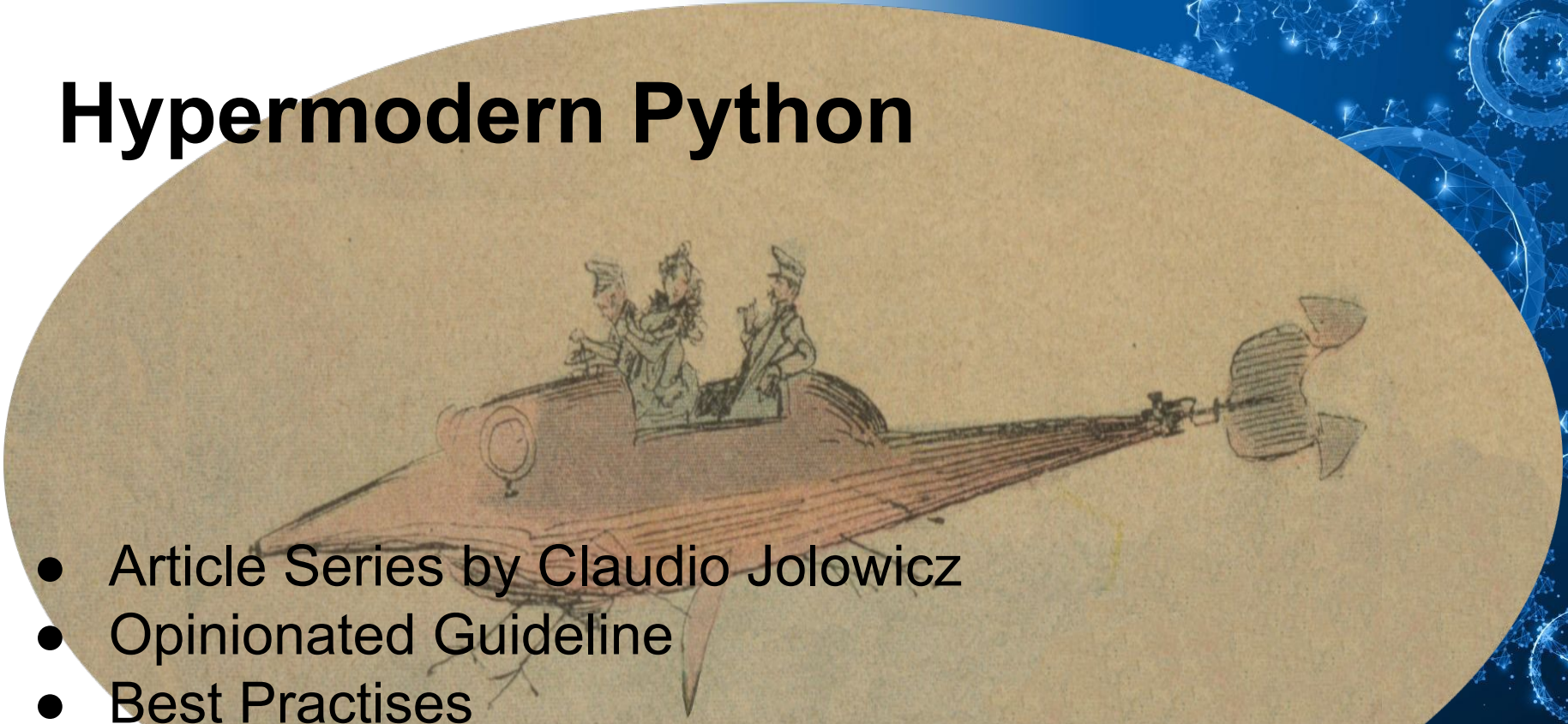
Hypermodern Python



- Article Series by Claudio Jolowicz
- Opinionated Guideline
- Best Practises
- Clean Code

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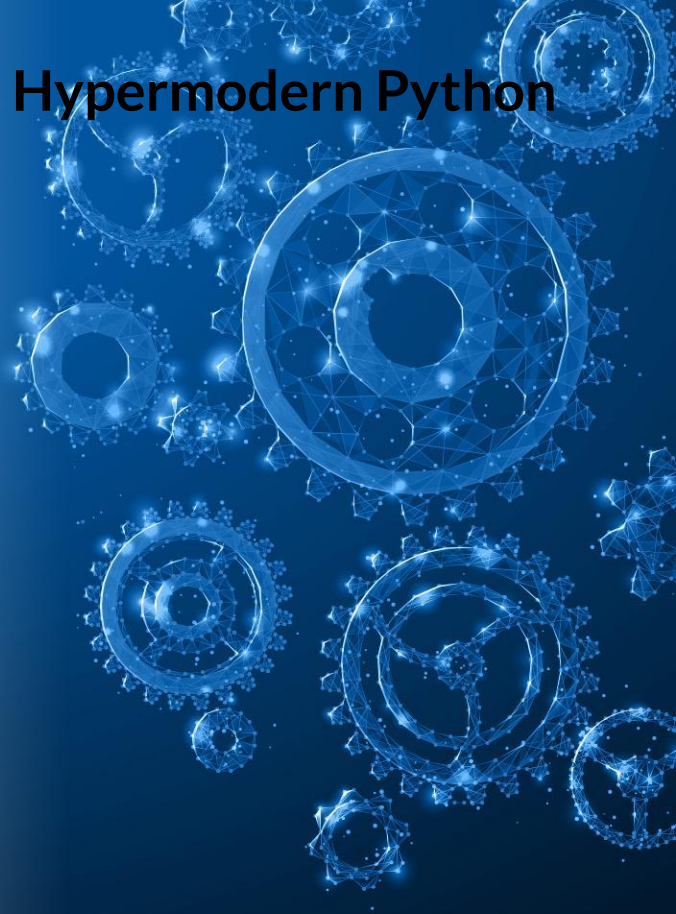
Hypermodern Python

- Packaging and dependency management with Poetry
- Test automation with Nox
- Linting with pre-commit and Flake8
- Continuous integration with GitHub Actions
- Documentation with Sphinx, MyST, and Read the Docs using the furo theme
- Automated uploads to PyPI and TestPyPI
- Automated release notes with Release Drafter
- Automated dependency updates with Dependabot
- Code formatting with Black and Prettier
- Import sorting with isort
- Testing with pytest
- Code coverage with Coverage.py
- Coverage reporting with Codecov
- Command-line interface with Click
- Static type-checking with mypy
- Runtime type-checking with Typeguard
- Automated Python syntax upgrades with pyupgrade
- Security audit with Bandit and Safety
- Check documentation examples with xdoctest
- Generate API documentation with autodoc and napoleon
- Generate command-line reference with sphinx-click
- Manage project labels with GitHub Labeler



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A Tale of Two Kitchens

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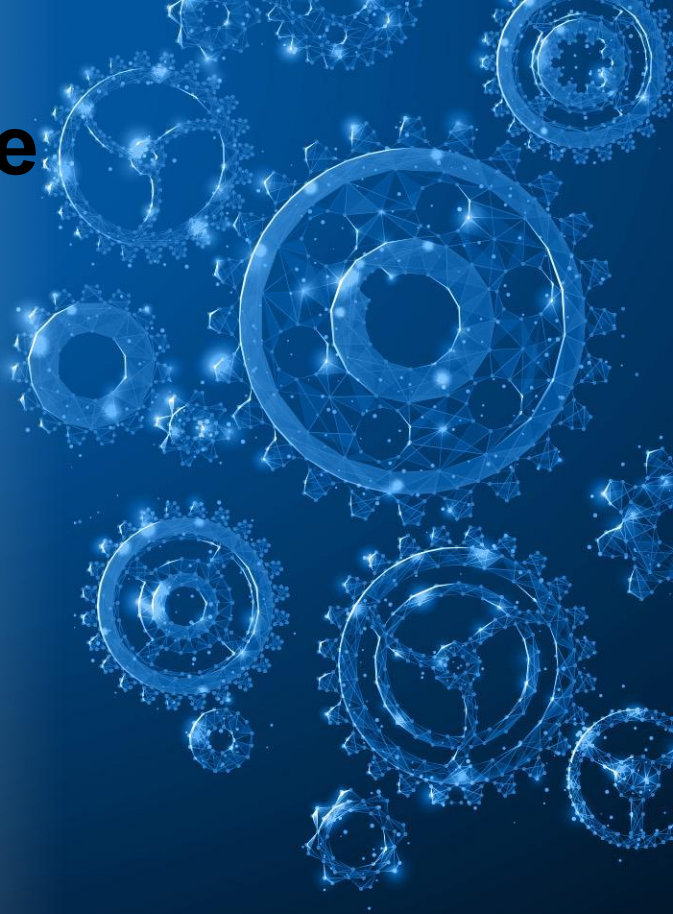
Which Kitchen?

- Security
- Health and Safety
- Deliver Fast
- Deliver High Quality
- Job Satisfaction
- Professional Growth

Why Clean up your Codebase

- Minimize Context switches
- LEAN: Eliminate Waste
- Broken Windows
- Boy Scout Rule
- Improve quality



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Start Small
Start Simple
Start Now
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Getting Started - Format Matters

- pre-commit
- isort, absolutify-imports, remove-star
- black
- pyupgrade, flynt
- flake8 + Plugins, YesQA

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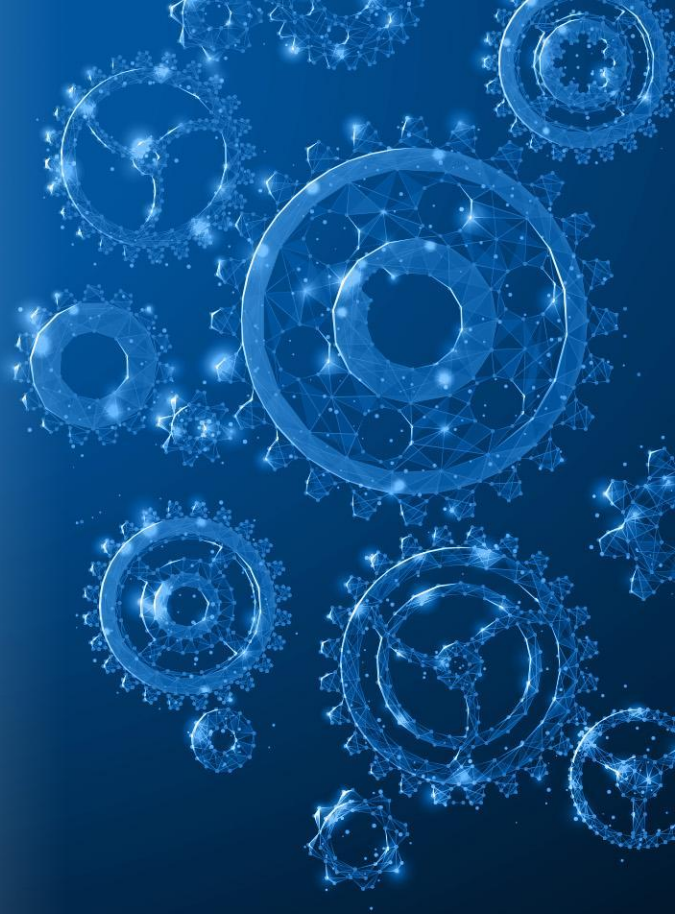
Security

- BugBear
- Bandit
- Safety
- Dependabot
- Pysa



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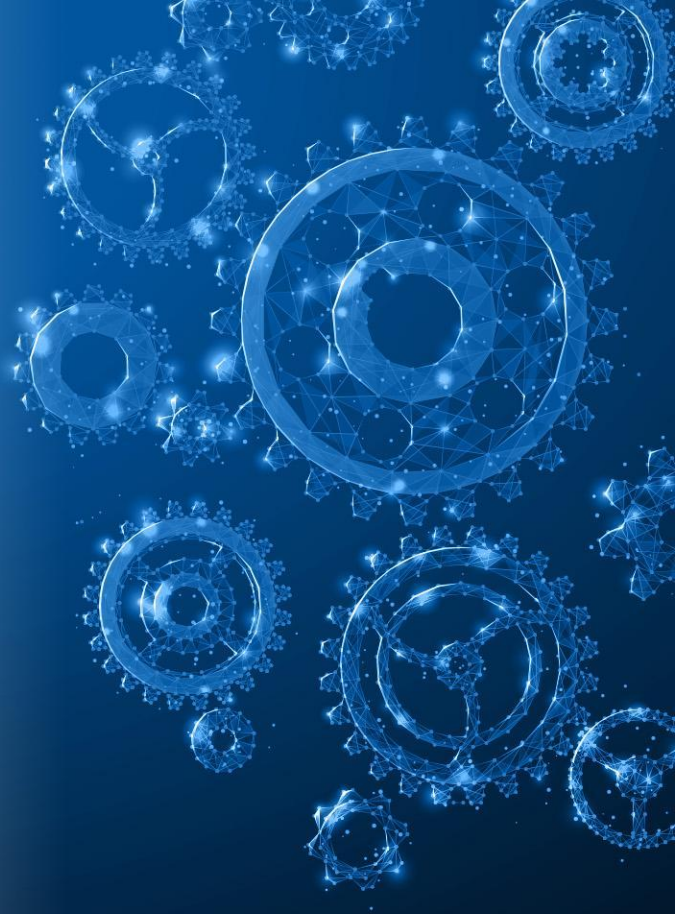
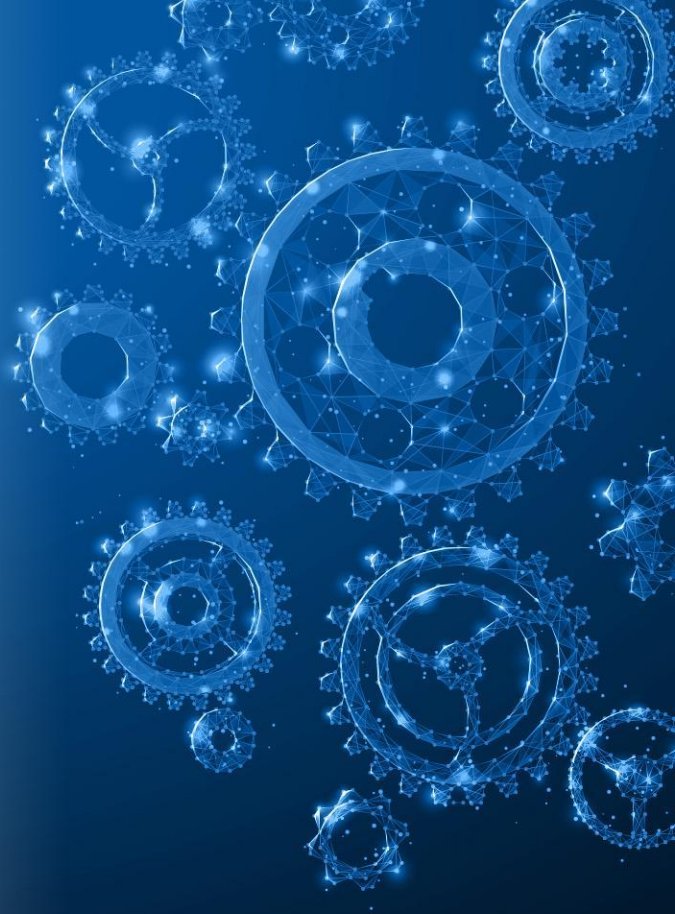
You improve what you measure

- Tests
  - Coverage
  - diff-cover
- Complexity
  - McCabe, Radon, Xenon
  - Lizard
  - Cognitive Complexity



Typing

- MyPy
- MonkeyType
- pyre infer and pytype
- typeguard (for tests)



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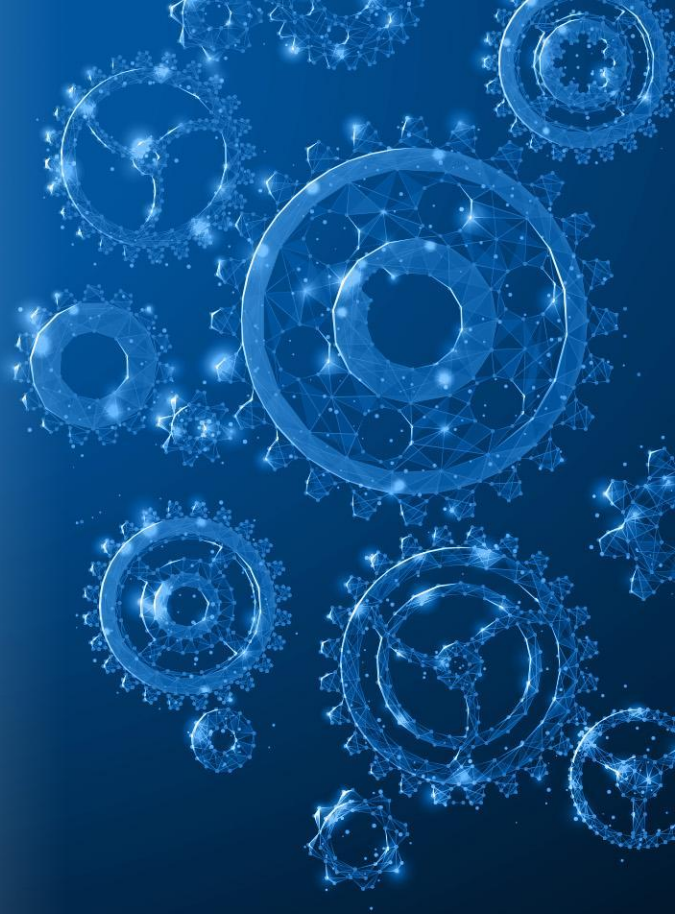
Tests need Love 💗 Too

- Teyit for unit tests
- pytestify
- unittest2pytest



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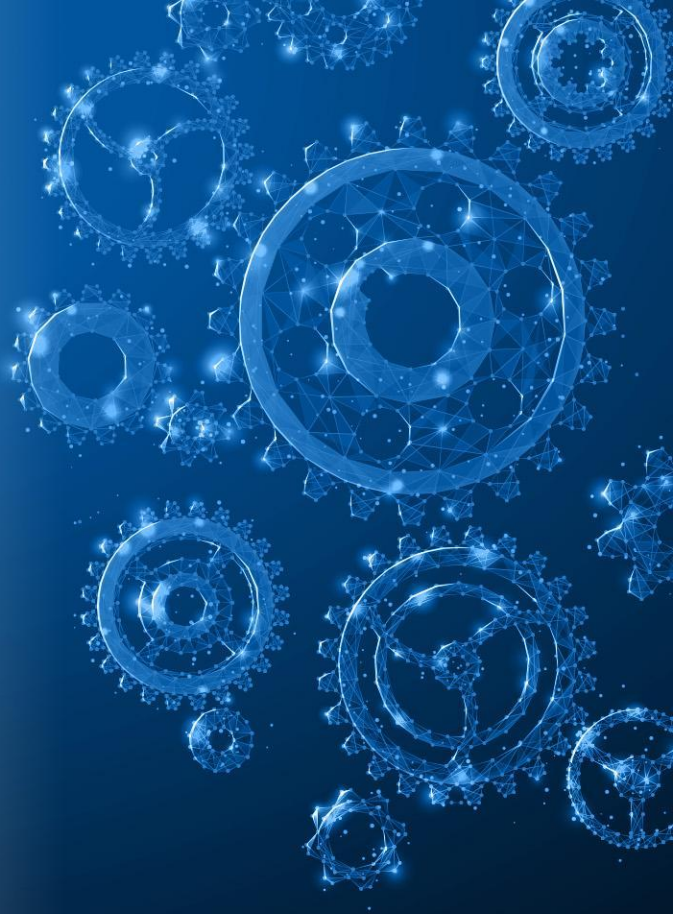
Testing (continued)

- Hypothesis and Ghostwriter
- Schemathesis for web APIs



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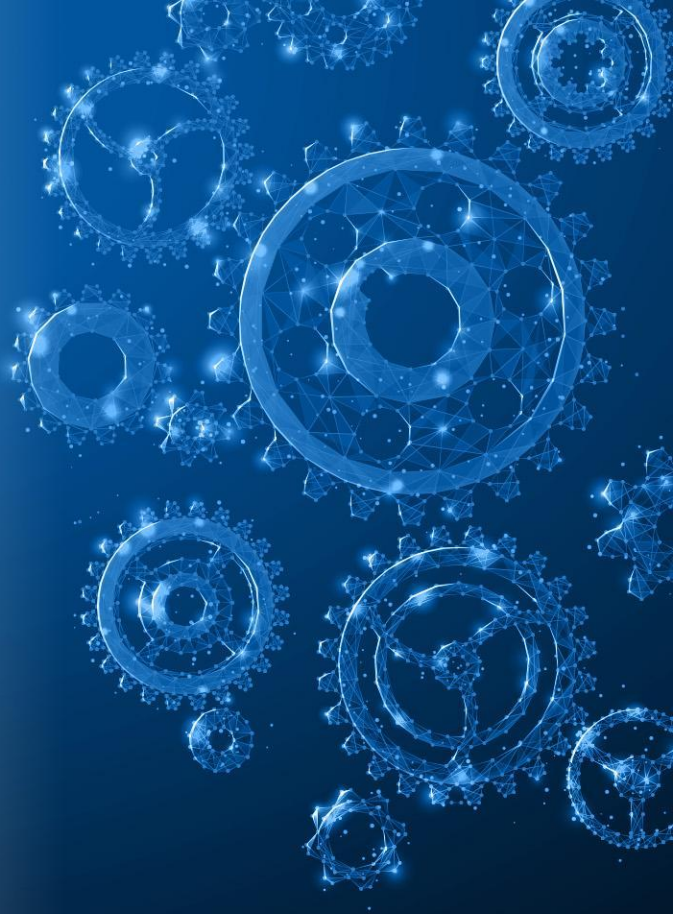
Testing (continued)

Quis custodiet ipsos custodes?
Who is watching those watchmen?

- MutMut Mutation Testing



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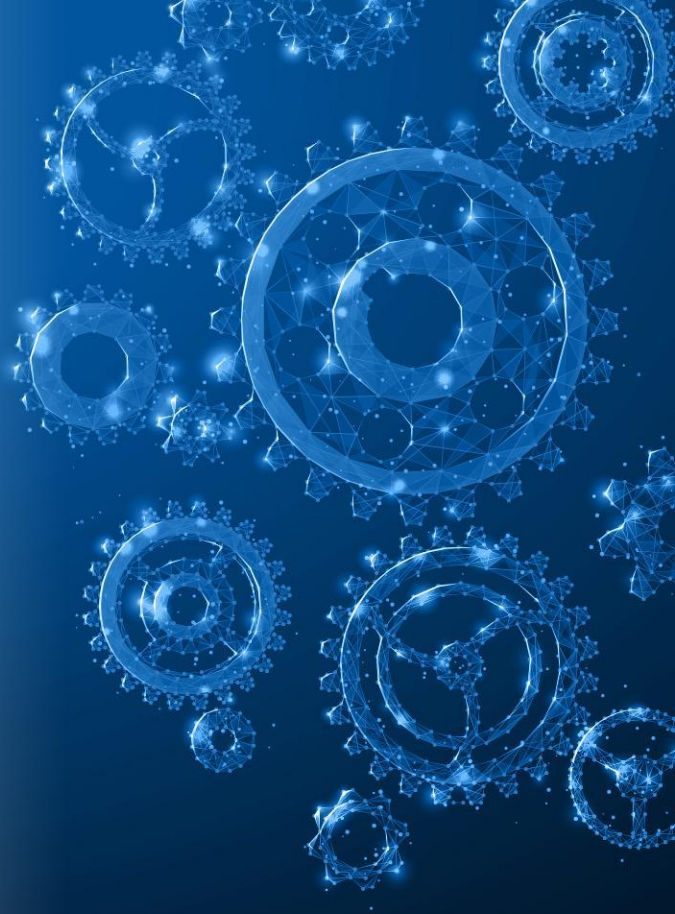
Upgrade

- pyupgrade
- Django-upgrade
- Django-codemod



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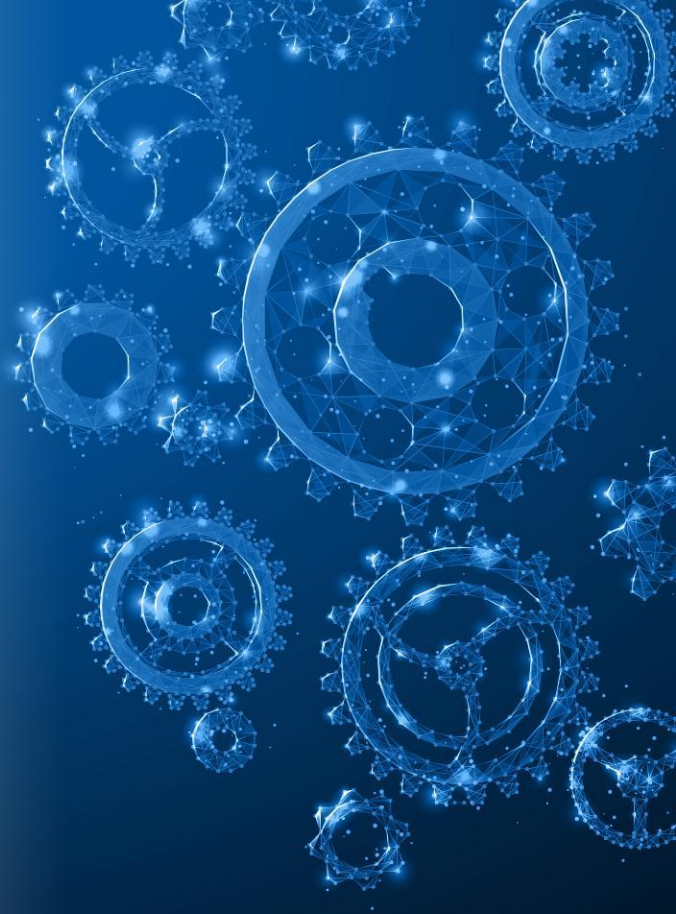
Roll our Own

- libCST
- …



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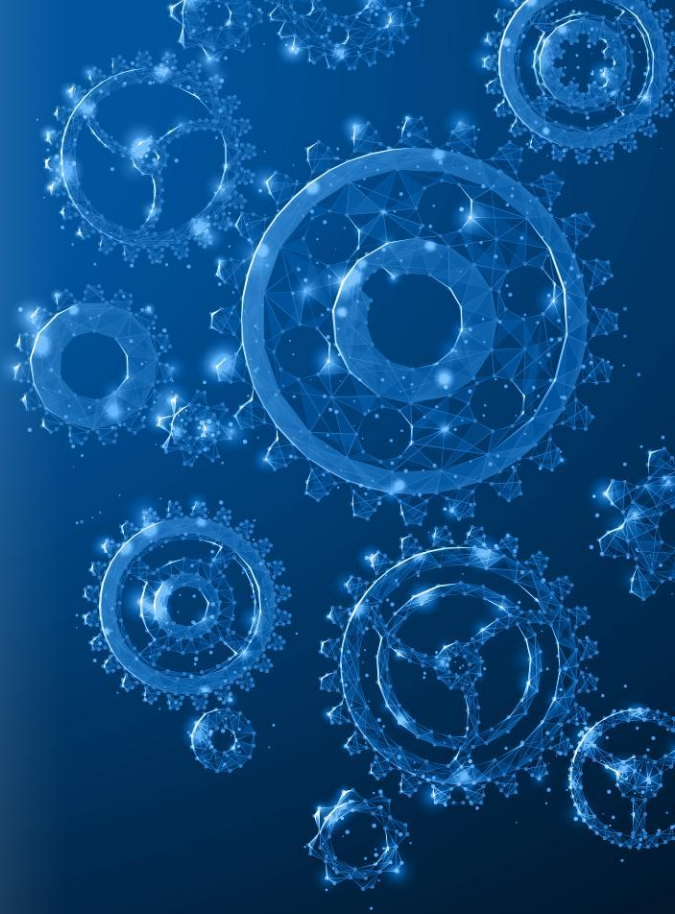
As A Service

- Sourcery
- SonarCloud
- Metabob
- Coverage.io



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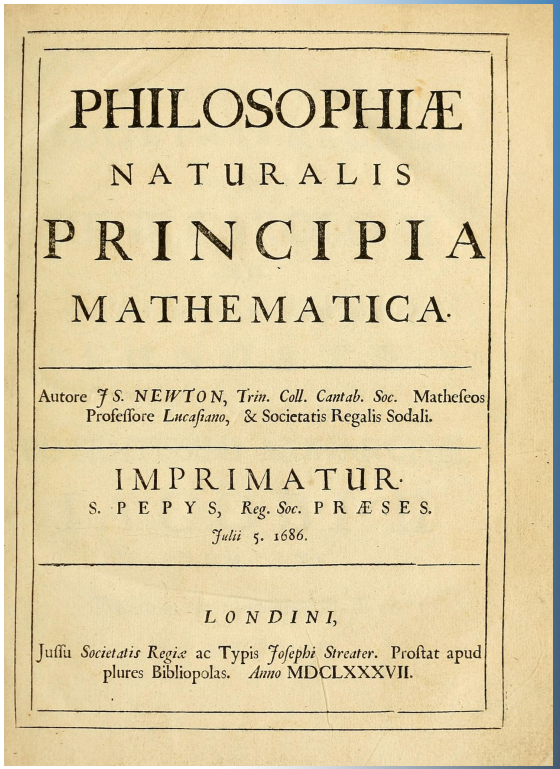
Where To Go From Here?

- DRY
- WET
- SOLID
- CUPID



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NATURALIS
PRINCIPIA
MATHEMATICA.

Autore *J S. NEWTON, Trin. Coll. Cantab. Soc.* Matheſeos Profeſſore *Lucaſiano*, & Societatis Regalis Sodali.

IMPRIMATUR.
S. PEPYS, *Reg. Soc.* PRÆSES.
Julii 5. 1686.

LONDINI,
Juſſu *Societatis Regiæ* ac Typis *Joſephi Streater.* Proſtat apud plures Bibliopolas. *Anno* MDCLXXXVII.

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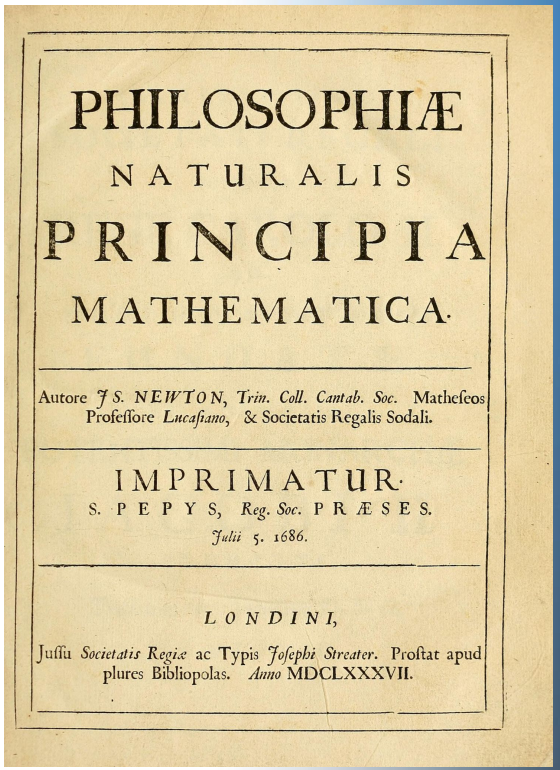
SOLID

- **S**ingle Responsibility
- **O**pen-Closed
- **L**iskov Substitution
- **I**nterface Segregation
- **D**ependency Inversion



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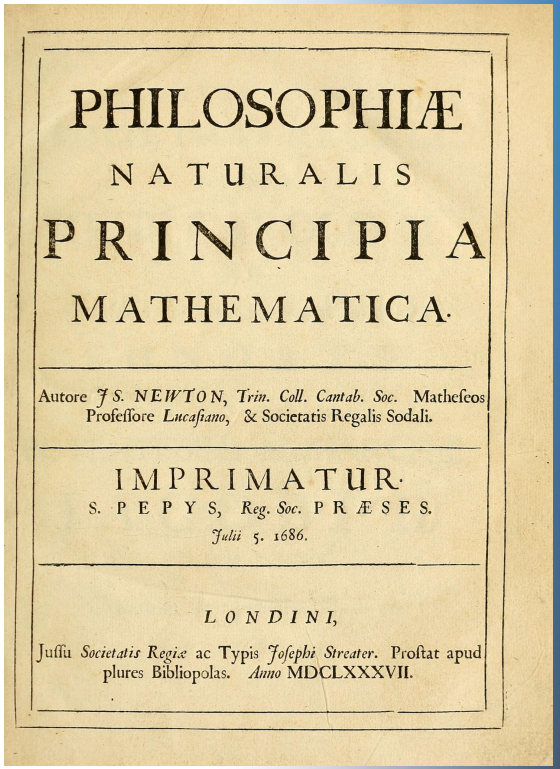
CUPID

- **Composable**: plays well with others
- **Unix philosophy**: does one thing well
- **Predictable**: does what you expect
- **Idiomatic**: feels natural
- **Domain-based**: the solution domain models the problem domain in language and structure



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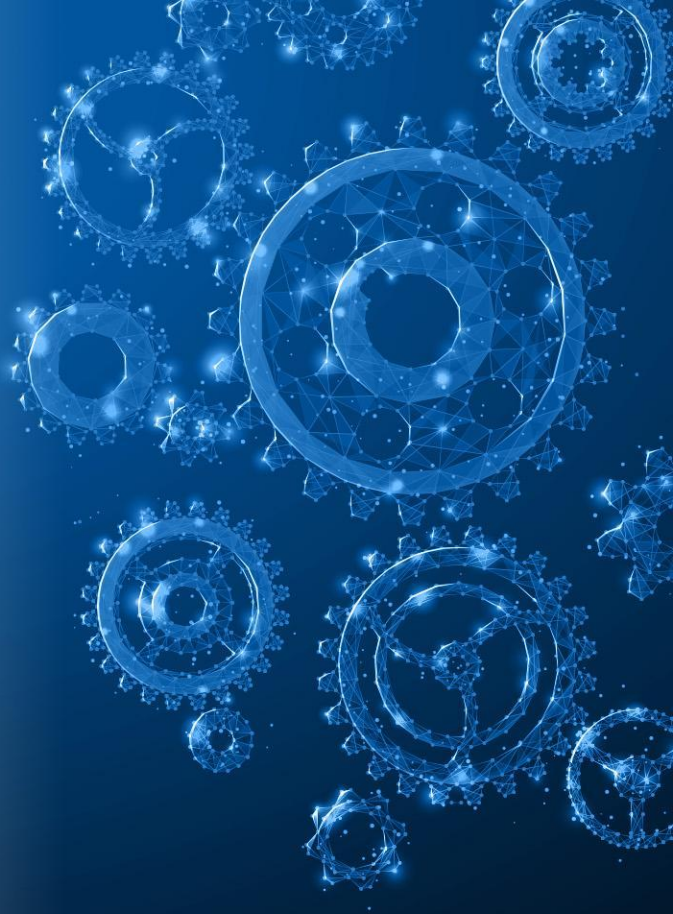
Means to Achieve an End

- Maintainability
- Extensibility
- Modularity



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Perfect is the Opposite of Done

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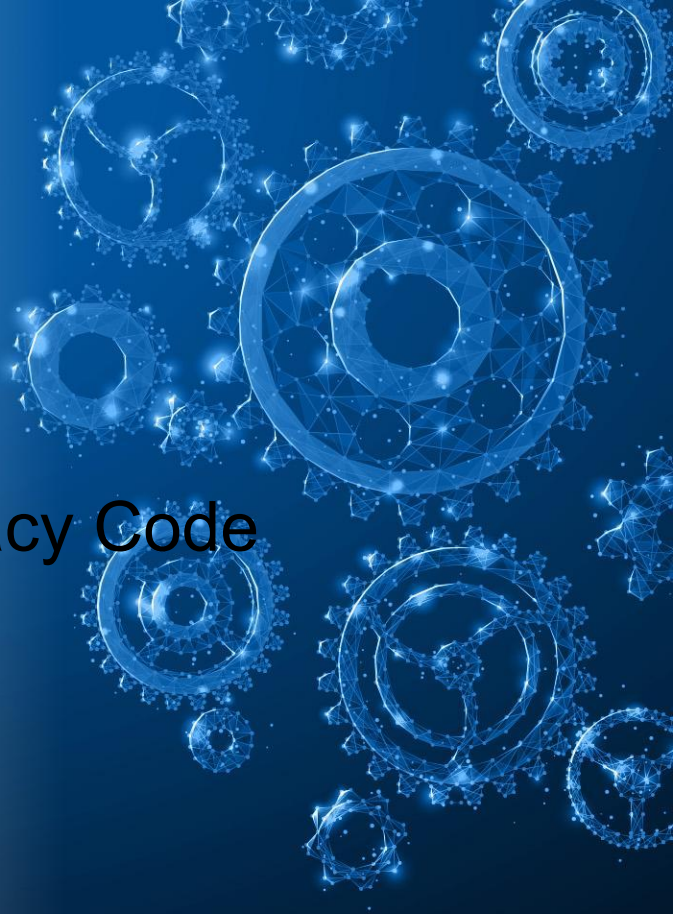
Summary



- What is Hypermodern Python
- Why Hypermodern Python
- How to hypermodernize your Legacy Code
- Next steps

Done is Better Than Perfect

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THANK YOU