

# Open Source Software in US Federal Agency Context

Christopher Steven Marcum  
Senior Statistician and Senior Science Policy Analyst

Software Heritage UNESCO  
Paris  
2 February 2024



Office of the Chief Statistician  
of the United States

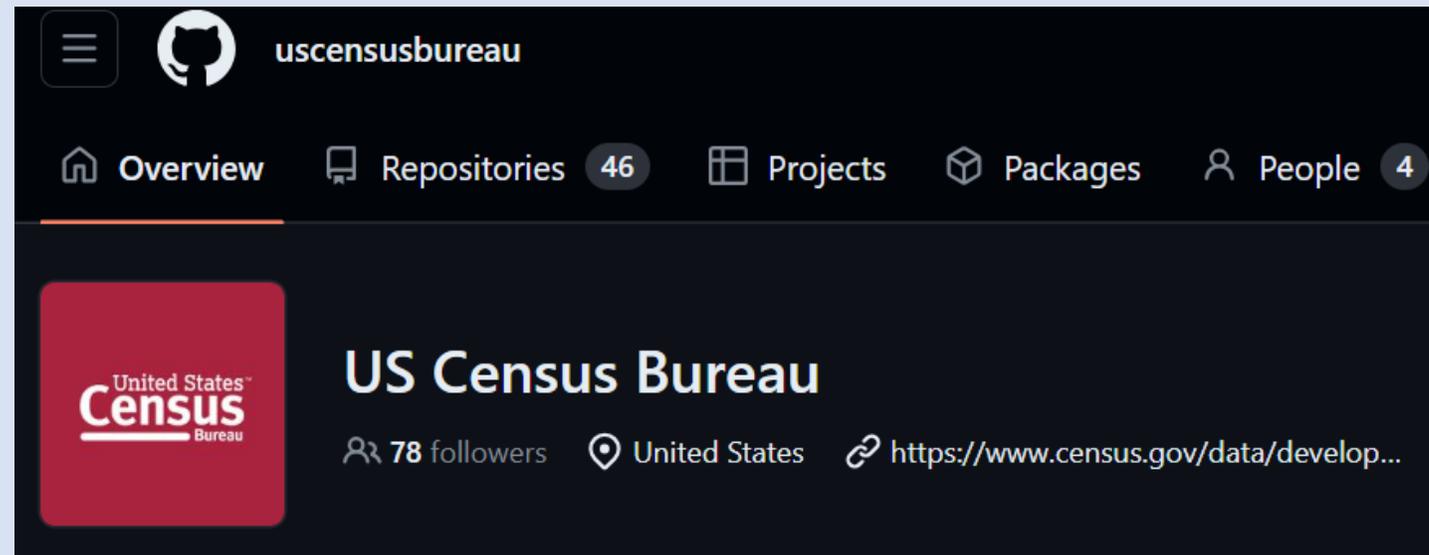
# US Federal Agencies and Open Source Code and Software

- Develop it
- Share it
- Use it
- Fund it
- Archive it



# US Federal Agencies and Open Source Code and Software

- **Develop it**
- Share it
- Use it
- Fund it
- Archive it

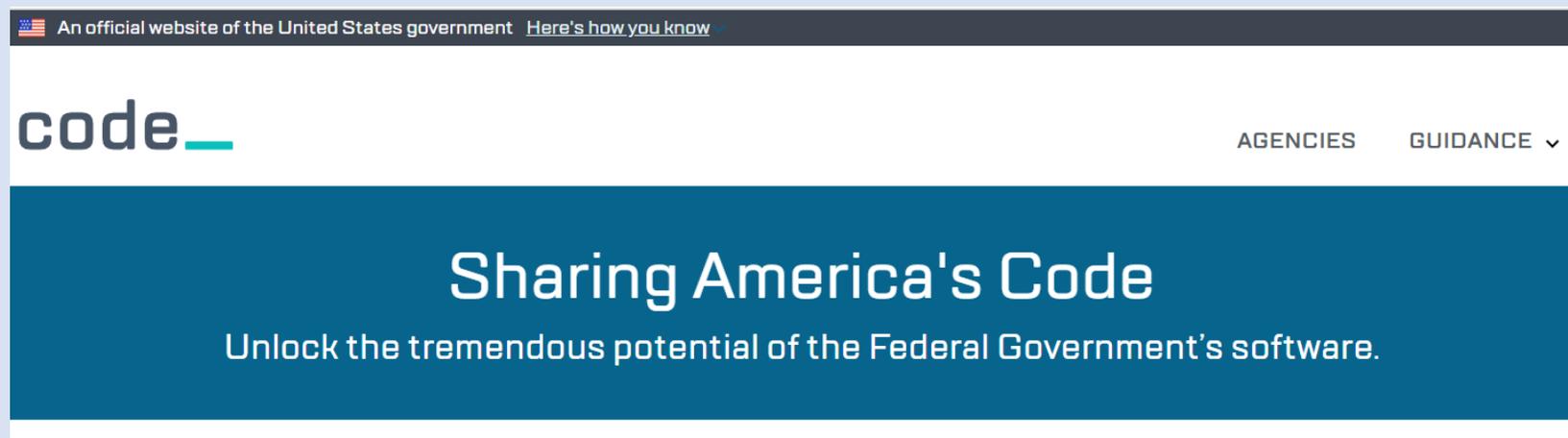


<https://github.com/uscensusbureau>



# US Federal Agencies and Open Source Code and Software

- Develop it
- Share it
- Use it
- Fund it
- Archive it



<https://www.code.gov>



# US Federal Agencies and Open Source Code and Software

- Develop it
- Share it
- **Use it**
- Fund it
- Archive it

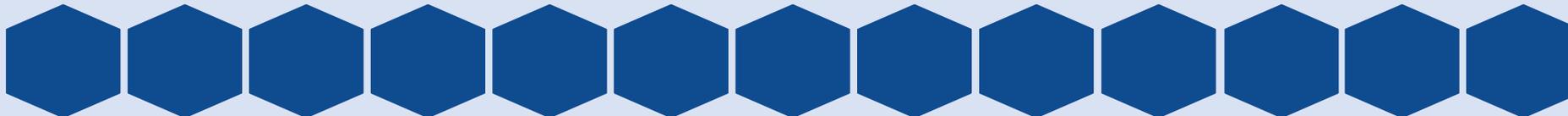
## Statistical Software Packages

FSRDC researchers have access to computing capacity to handle large datasets and complex calculations. Standard statistical, econometric, and programming software, including the below are available in a Linux environment. Available software, including versions, is subject to change.

- Anaconda Python
- Knitro
- MADD
- Mathematica
- MATLAB
- R
- Rstudio
- SAS®
- Stat/Transfer
- Stata
- Stata-MP
- SUDAAN
- Tomlab



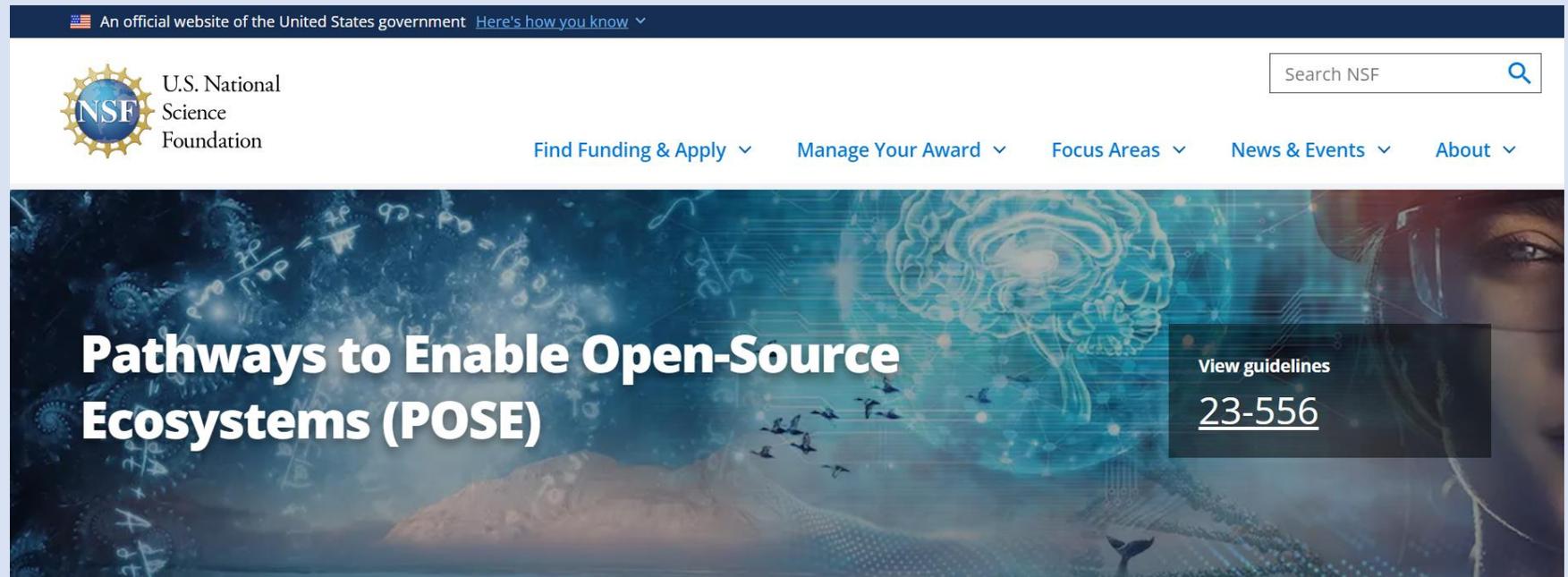
[https://www.census.gov/about/adrm/fsrdc/about/secure\\_rdc.html](https://www.census.gov/about/adrm/fsrdc/about/secure_rdc.html)



Office of the Chief Statistician  
of the United States

# US Federal Agencies and Open Source Code and Software

- Develop it
- Share it
- Use it
- Fund it
- Archive it



<https://new.nsf.gov/funding/opportunities/pathways-enable-open-source-ecosystems-pose>



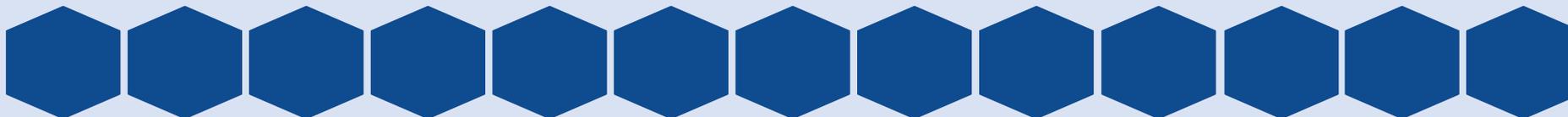
# US Federal Agencies and Open Source Code and Software

- Develop it
- Share it
- Use it
- Fund it
- Archive it

The screenshot displays a grid of six categories, each with an icon, a title, a description, and a list of top projects with their star counts. The categories are: AI & Machine Learning, Performance & Workflow, Scientific Software, Simulation, Tools, and Visualization.

Category	Project	Stars
AI & MACHINE LEARNING	NIST jarvis	261
	NIST NFIQ2	114
	NIST chemnlp	52
	NIST SCATMECH	29
PERFORMANCE & WORKFLOW	NIST NEMO	111
	NIST HTGS	37
	NIST hiperc	36
	NIST opensource-repo	2
SCIENTIFIC SOFTWARE	NIST fipy	441
	NIST pthub	43
	NIST hiperc	36
	NIST pyPRISM	32
SIMULATION	NIST fipy	441
	NIST NEMO	111
	NIST chemnlp	52
	NIST pthub	43
TOOLS	NIST OSCAL	606
	NIST NEMO	111
	NIST vulIntology	32
	NIST oscal-cli	30
VISUALIZATION	NIST SCATMECH	29
	NIST ScatterMIST	10

<https://code.nist.gov/>



# Government-Wide Policy Guidance on Open Source Software

- OMB M-16-21
  - Guides agencies to make software open source and share it
- OMB M-22-18
  - Describes cybersecurity measures agencies expected to take
- 2022 OSTP Public Access Memo
  - Does not explicitly cite source code though expects data sufficient to reproduce results – some agencies include code in their specific plans
- OMB M-23-16
  - Updates M-22-18 to clarify that most freely available open-source software is out of scope for security attestation requirements
- Forthcoming Implementation Guidance for Executive Order on Artificial Intelligence
  - Public draft references expectations for agencies to use open-source libraries



Thank you!