



NeuroFedora

Free Software for Free Neuroscience

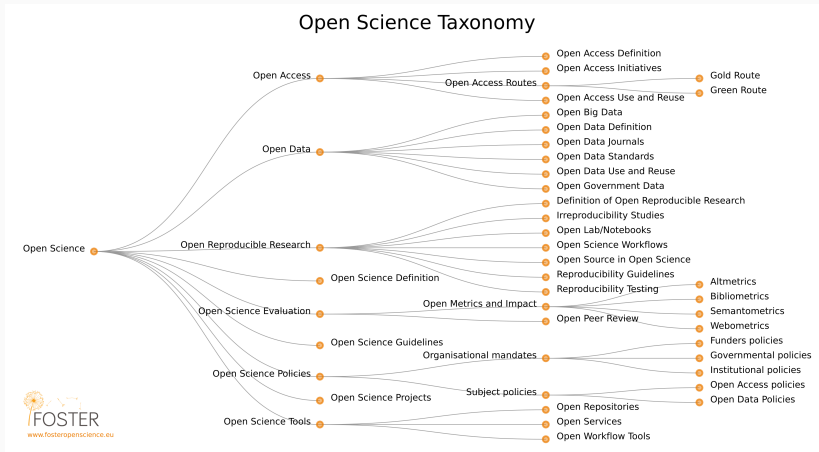
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Volunteer: Fedora Project.

Free/Open (neuro) Science

Modern Free/Open Science



¹Petr Knoth and Nancy Pontika (CC BY 3.0)

The ideal, in short:

Free/Open Science:

Everyone should have the freedom to share, study, and modify scientific material.

²Free software foundation

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FOSS:

Everyone should have the freedom to share, study, and modify software⁵.

²Free software foundation

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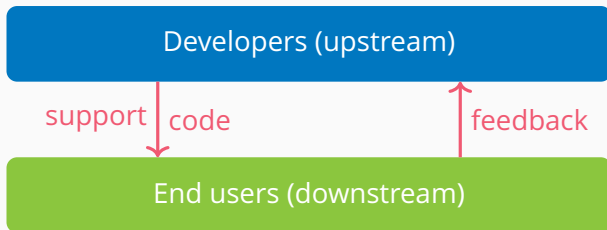
A Commitment to Open Source in Neuroscience

Padraig Gleeson • Andrew P. Davison • R. Angus Silver • Giorgio A. Ascoli  

Open Access • DOI: <https://doi.org/10.1016/j.neuron.2017.10.013> •

NeuroFedora: why, how, what?

FOSS: Developers and users



Neuroscience community: highly multidisciplinary

- **various specialities:** biologists, mathematicians, physicists, chemists, psychologists, ... ,

Neuroscience community: highly multidisciplinary

- various specialities: biologists, mathematicians, physicists, chemists, psychologists, ... ,
- small proportion of trained software developers

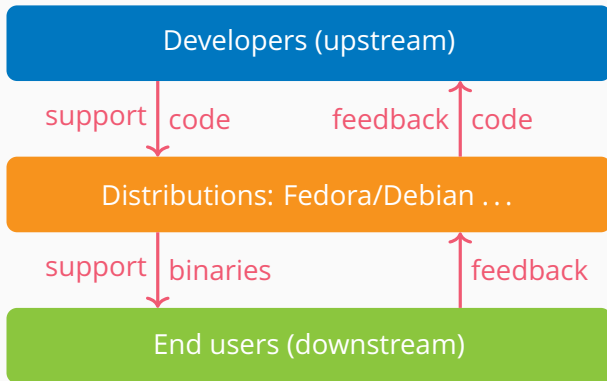
(Anecdotal) notes on development of research software

- often **single developer**, or small development teams
- limited **maintenance**, short-lived projects
- limited **access to hardware/resources**
- limited **code quality**
- limited **use of established best practices**
- limited **testing for correctness (!)**
- **complex dependency chains**
- lack of **documentation and support**
- lack of **community development know-how**

(Anecdotal) notes on users of research software

- waste time and effort installing (and reinstalling) their software stacks
- rarely run test suites (!)
- rarely report bugs upstream
- rarely send improvements upstream
- are unaware of helpful development tools

Distributions liaison between developers and users



Distributions, like Fedora, are in a unique position:

- liaison between upstream and users
- have the infrastructure
- follow best practices in software development
- constantly work on community development
- learn from one another—train while working
- disseminate information to end-users

Primary goal:

- Provide a ready to use, integrated FOSS platform for neuroscientists⁷.

⁷ Researchers, academics, hobbyists, anyone!

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Secondary/collateral goals:

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Primary goal:

- Provide a ready to use, integrated FOSS platform for neuroscientists⁷.

Secondary/collateral goals:

- help improve the standard and maintenance of tools
- help users develop software development skills
- make neuroscience accessible to non-specialists

⁷ Researchers, academics, hobbyists, anyone!

- less than a year old⁸,

⁸in its second iteration

⁹[src.fedoraproject.org: Neuro-SIG](https://src.fedoraproject.org/Neuro-SIG)

¹⁰[pagure.io: Neuro-SIG: issues](https://pagure.io/Neuro-SIG/issues)

NeuroFedora: current metrics

- less than a year old⁸,
- 20 volunteers
 - 15 package maintainers
 - 5 designers, newcomers
 - only 5 from a neuroscience background

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- software:
 - 120 tools (packages) ready to install⁹:
 - Neuron, NEST, Genesis, Brian (v1 and v2), Moose, python-libNeuroML, PyLEMS, PyNWB, ...
 - ~170 in queue¹⁰.
 - NeuroMLlite, pyNeuroML, NetPyNE, ...

⁸in its second iteration

⁹src.fedoraproject.org: Neuro-SIG

¹⁰pagure.io: Neuro-SIG: issues

Search: “NeuroFedora”



Mailing list: neuro-sig@lists.fedoraproject.org

IRC: [#fedora-neuro](#) on Freenode

Telegram: t.me/NeuroFedora

Documentation neuro.fedoraproject.org

Blog: neuroblog.fedoraproject.org

Pagure.io (FOSS Git forge): [neuro-sig/NeuroFedora](https://pagure.io/neuro-sig/NeuroFedora)



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The \LaTeX source code can be found [here](#).