

Internetplattform Neuroinformatik A Pilot Study for the OECD Neuroinformatics Portal[★]

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Abstract

Following the open source philosophy, more and more neuroscientists are willing to share their primary data as well as custom made software with the scientific community. To facilitate this interaction, we are establishing a website that links publicly available resources (such as experimental data, numerical tools, and computer models) and contains extensive annotation. In this paper, we explain step by step how interested scientists can actively contribute content to the site.

Key words: Web publishing; content management system; work flow; information repository; meta data; data sharing

1 Introduction

Novel experimental and computational techniques have led to major transitions in the neurosciences, all the way from the molecular to the system level. At the same time, more and more scientists are willing to share their data, analysis tools and computer models and have thus started a new research culture reflecting the open source philosophy. While there is still a debate within the community as to whether or not this paradigm shift should be made [1], it is obvious that there are many open questions ranging from technical to legal issues [2,3].

But even many of the data and computer programs already publicly available are not known to the general neuroscience community and other interested

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scientists. To overcome this deficit, the *Working Group on Neuroinformatics* of the *OECD Global Science Forum* [4] has issued a proposal to create an internet-based knowledge management system for all data relating to nervous system structure and function through an *internet portal*. Here we explain how you as an interested individual can contribute content to this site. A more general introduction to the portal is available elsewhere [5].

2 The Action Box

One general feature of the neuroinformatics portal at www.neuroinf.de that you may notice immediately when surfing the site is the following. On the left-hand side of the screen you find a column entitled ACTION. In this so-called *action box* we first display who we currently think you are (i.e., your login name if you are logged in, or GUEST otherwise) and then, more importantly, the possible actions that you are allowed to take. These actions are a filtered list depending on your personal privileges as well as on the page (or object in our parlance) you are currently looking at. As GUEST you can VIEW and SEARCH the site. Things become more interesting when you LOGIN. For this you need to have an account at the portal but that can easily be obtained by clicking on JOIN.

3 Joining the Community

Once you have decided to join the portal community, we are asking you to provide a freely chosen login name (you will be warned if it is already in use) and a valid email address. This address will be used to send you a randomly-generated password. Once you have logged in with this password, you may change it to anything you like. You are then taken to the PERSONAL DATA page of your member preferences. Use this form to provide whatever research-related information you would like to make available about yourself via the portal. Otherwise just leave it blank. Note, however, that even if you enter informations and click on SAVE you still will be the only one who is able to see the page that you get by clicking on VIEW (to get back to the edit form go to PERSONAL DATA). To make this page publicly available and to be included in the PEOPLE listing under TOPICS you also need to SUBMIT your entry for publication. Look for the SUBMIT option in the action box.

This demonstrates another important feature of the portal, namely that the general visibility of objects depends on a variable called STATE. Its value gets displayed in the action box and it is typically either PRIVATE, PENDING, or

PUBLISHED. The collection of possible states and the allowed transitions between them together with rules as to who is allowed to invoke which transition is commonly referred to as *Workflow* (details below). This is how we control what is made available to the general public through the portal.

With respect to publishing personal data we are required by law to obtain explicit permission from you. Therefore, when you submit personal information we go through a number of consistency checks to verify your identity, including an email back to you asking for confirmation (like most mailing lists do for subscriptions) before we publish your data. If, on the other hand, you happen to notice that you are already included in the PERSONS listing and you did not ask for this yourself, please notify us. You can reach us – for any portal related questions, critique, suggestions – via the FEEDBACK option in the top bar or the email link to `neuroinf-admin` at the bottom of each page.

Background: A note on browser caching. If you try to follow this step by step introduction and you get the impression that the options you are offered within the action box don't meet your expectations, one possible cause could be that your browser does not reload the page even though it might have changed. To reduce net traffic and page download times many browsers keep local copies of visited pages and only those copies get displayed when you return to one of those pages. Clicking on your browsers RELOAD button should circumvent the local cache and give you an updated view.

Triggered by the registration process you also obtain a private area within the portal, the so-called *member area*.

4 The Member Area

Now that you have an account at the site you also have your own member area. Conceptually, this is like a home directory in any other computer system. This is where you go if you want to contribute content to the portal site. To get to your *desktop* you need to be logged in first. Then you should click on MY STUFF.

At your first visit there should be just one object that has been created per default: a document called `index.html`, your personal and initially PRIVATE homepage within the portal. We recommend that you do not rename or delete it but you should of course edit it if you want to use it. Clicking on its name shows you what the homepage currently looks like. Via the EDIT action you can get to the editing interface. Here you can specify the format, and either upload a file that you want to import from your local system or you write (or cut and paste with your mouse) the page's source code into the text area field.

Note, however, that even though `html` is provided as a default format some `html`-tags will not work. It is for security reasons that potentially harmful tags (like form elements) will simply be ignored.

The options that you have to organize your desktop (`RENAME`, `CUT`, `COPY`, `DELETE`, ...) should be self-explaining but the possibilities offered after clicking on `NEW`... may deserve some clarification.

5 Content Types

Selecting `NEW`... from your desktop area (`MY STUFF`) brings you to the *Create Content* page. Here you first need to select the type of content that you want to provide.

Background: What content types to expect. Currently there is only a limited number of different content types available for creation through regular members, like documents, news items, discussions, research groups, software, databases, events, etc. Expect this list to grow in the future as we extend the scope and coverage of the portal. In any case, however, we expect that the information you provide characterizes a resource that is already available **somewhere else** (preferentially online). We do not intend and do not have the resources to act as a primary data repository. The added benefit of providing information about resources that are available somewhere else anyway consists of better visibility within the community and the other features that we provide, like cross-linking, classification and discussion of entries (see below).

Next, you have to provide a name for the content object you are about to create. This name should be one word and as short and descriptive as possible. It will become **part of the URL** of the object¹. Therefore, it should not contain any special characters, white-spaces, or whatever may cause trouble within URLs. After clicking on `ADD` you are taken to the appropriate entry form for the selected content type. Provide whatever information you see fit and click on `SAVE`. Now you see how your entry will be displayed through the portal. If you want to change any items, click on `EDIT` again. If you feel comfortable with your entry you should consider submitting it for publication. What happens then will be explained in the next section.

Background: A note on publications. The site is no preprint server and we also do not want to compete with dedicated literature data bases. You may, however, use the publication entry for pointing to documents that would otherwise be hard to find, like preprints, technical reports, master-, diploma-,

¹ Don't worry too much. With `RENAME` you can still change this name later.

or PhD-thesis. You can of course also point to regular publications but then we expect that they are available online and free of charge to anybody.

6 Workflow

To limit the number of irrelevant objects we implemented a web-based review process by defining the following workflow. As mentioned above, any content object can be in one of several states like `PRIVATE`, `PENDING`, or `PUBLISHED` and depending on the state, different groups have the right to see and manipulate the object and find it through the site's `SEARCH` facilities. While in the `PRIVATE` state, only the owner can view and edit the object, whereas `PENDING` objects can be viewed by the reviewers also. In addition, `PENDING` objects cannot be edited anymore by the owner. Only `PUBLISHED` objects are accessible to all users and they cannot be edited while in this state (but see below).

To change the state of an object you need to invoke a transition. Standard transitions that regular members are able to invoke are `SUBMIT` which takes objects from the `PRIVATE` to the `PENDING` state and `RETRACT` which moves objects back to the `PRIVATE` state. Use the latter if you want to edit or update an entry that you had published previously. When you are done with your changes, you need to `SUBMIT` it again in order to get the updated version reviewed and published. When selecting a transition from the action box you are taken to a form that first tells you what you are about to do and then allows you to add a comment which will be included in the `STATUS HISTORY`. Use this as you see fit. Only when you press `SUBMIT ITEM` or `RETRACT THIS ITEM` the transition will actually be invoked.

While this workflow is our main mechanism for quality control we use it only to check whether information offered is within the scope of the portal, whether the details given are sufficient to be meaningful, whether the links work, etc. We do not even try to judge the scientific quality of the resource described. To that end we offer the `REPLY` option to regular members. Any content item published within the portal can be made the starting point of a threaded discussion simply by selecting `REPLY` while viewing it. But you need to be logged in to have this option available. You can also `REPLY` to other comments within a particular thread. Your comments will be `PUBLISHED` immediately, they cannot be edited later and you will be identified as the author. We retain the right to remove comments if they are offending or otherwise not acceptable.

7 Advanced Options

If you ever created a content object within our portal yourself you might have noticed already that there are further options that have not been described yet, such as CLASSIFY, METADATA or CROSSLINK. These we consider advanced and they are still being developed. Nevertheless, feel free to check them out. Use CLASSIFY to select keywords from our hierarchical topics list to further characterize your content object. With METADATA you can for instance set an effective or expiration date for the display of your resource within the portal or influence what we may pass on to third parties about your entry. CROSSLINK shall be used to establish **reciprocal** and visible links between different portal entries. For detailed explanation of these features you are referred to the online documentation.

8 Outlook

As the portal described here is currently a pilot study, expect it to be developed further. We still may introduce changes at various levels ranging from the appearance to the core functionality (without losing data, of course). But the general design and the core features as presented here are most likely not to change. We invite you to browse our site and to join the portal community to actively contribute content. The more you do so, the more useful the portal will be to the whole community.

References

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