University of West Bohemia

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Diploma Thesis

Presentation of research group

Pilsen, 2013

David Gorschenek

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Statement

I hereby declare that this diploma thesis is completely my own work and that I used only the cited sources.

Pilsen, ...

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David Gorschenek

Abstract

Presentation of research group

Presentation of the research and presentation of the research group itself is very important in these days. Every research group, who wants to be known all around the world and who wants to get people interested in their field of research, needs to present their research.

The purpose of my study is to analyse how research groups in International Neuroinformatics Coordinating Facility, in the Department of Computer Science and Engineering, and other research groups at world known universities present their research. This analysis is used during the process of designing the presentation websites of the Czech neuroinformatics node. Then there is an analysis of the content management systems because the presentation websites are created by using one of the analysed content management systems.

Another purpose of my study is to analyse how the members of the research group can manage their project and share files and documents, which are private. Some software tools are analysed there, which are used for project management.

Finally, I suggested and realised solution for the presentation of the Czech neuroinformatics node and for the project management of the research group in the Department of Computer Science and Engineering at the University of West Bohemia according to the given requirements of the members of the research group.

Table of contents

1 Introduction

Presentation of the research gives an important opportunity to share the findings with other researchers all around the world. Project management is also important for the researchers because it allows them to have some documents only private and share them only among each other. They can also have any other types of files, which are private for the research group. It means, that effective project management is important for the research group and for their research itself and then after the project is finished, they can present its results on the new created presentation websites.

The purpose of my study is to realise solution for the presentation of the Czech neuroinformatics node and for the project management of the research group in the Department of Computer Science and Engineering at the University of West Bohemia according to the given requirements of the members of the research group.

In the first section of the document you can find some basic information about the research group in general.

Then in the second section about project management you can find basic information about software tools for project management, which I found out by using these tools. Then in this section you can find the realization of the project management of the research group in the chosen software tool according to the given requirements of the members of the research group.

In the third section about presentation of the research you can find some information about current situation of the presentation of the Czech neuroinformatics node and of the EEG/ERP research group in the Department of Computer Science and Engineering at the University of West Bohemia. Then you can find a part of the text with the analysis of presentations. It is divided into presentation of the research in the Department of Computer Science and Engineering and other research groups at world known universities. After analysis you can find my design of the presentation websites according to the accomplished analysis of presentation. In this section you can also find a part about the most used content management systems. It contains their main features and my results from using each content management system. At the end of this section you can find the realization of the solution for the presentation of the Czech neuroinformatics node in the chosen content management system according to the given requirements of the members of the research group in the Department of Computer Science and Engineering at the University of West Bohemia.

2 About the research group

The following text is based on [1].

The research group focuses on these research directions:

- They measure and evaluate electrical activity of human brain and examine human behavior in stressful and stereotype situations. Methods of electroencephalography (EEG) and event-related potentials (ERP) are used for the measurement. They collaborate with some partners (Czech Technical University in Prague, University Hospital in Pilsen, Škoda Auto, Inc., Pilsen brewery,...). They are responsible for technical and scientific issues, e.g. EEG/ERP laboratory operation, design and implementation of new experiments, development of advanced software tools for EEG/ERP research, and analysis and proposal of signal processing methods. Currently the members of the research group are working on the following projects:
    - EEG/ERP portal including EEG/ERP experimental database
    - Methods of EEG/ERP analysis
    - Research of driver's attention
    - Research of beer drinkability
    - ERP analysis in children with developmental coordination disorder
- They focus on the medical examinations where Computer Tomography (CT) is used. They create maps showing the extent of irreversible necrotic tissue throughout the brain after a stroke. Resulting maps are used in determining the initial treatment of the patient (operation or thrombolytic therapy).
- In clinical phoniatry they participate in the development of modern diagnostic procedures and classification tools for assessing the quality of the glottis closure (processing and evaluation of data from high-speed camera, videokymography, multidimensional voice analysis and examination of the voice).

3 Project management

3.1 Introduction

In this section you can find some basic information about software tools for project management, which I found out by using these tools. The software tools are Kerio Samepage, IBM DeveloperWorks and IBM Connections 4.0. I studied IBM DeveloperWorks only marginally because IBM DeveloperWorks is predecessor of the IBM Connections, which has more features.

After all I chose the IBM Connections 4.0 for the project management because I found out that during this summer semester in 2013 it should be running in the Department of Computer Science and Engineering and that is why there is no need to be worried about cancellation of the project. This software tool also fulfils all requirements of the research group so it seems to be suitable software tool for the project management of the research group.

Requirements of the research group are privacy of the group, effective file management, EEG laboratory management, experiment management and work management. These requirements are described in the chapter 3.3 Realization.

I did not engage in the managing of the software project, which includes GitHub, SourceForge etc. because it was not my field of study in this thesis.

3.2 Software tools

3.2.1Kerio Samepage

The following text is based on [2], [3], [4].

Kerio Samepage (see Figure 3.2.1-1) is a cloud service for social collaboration. It makes easier the sharing and collaboration on documents, files, notes, discussions and multimedia content. It is possible to add various types of content to pages (files, images, links, task lists, calendar events, videos and text notes) (see Figure 3.2.1-2).

Figure 3.2.1-1: Homepage of the created group in Kerio Samepage

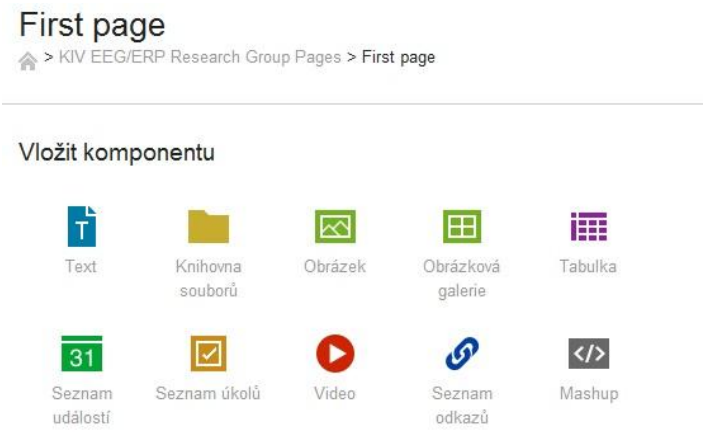


Figure 3.2.1-2: Inserting components to the page

Kerio Samepage is available in two packages:

1. **Starter Plan** - It is free. There is unlimited number of users and it has 10 GB of shared storage space. At signup there is only 2 GB of shared storage space available, but it adds 500 MB for each invited user. Max file size of uploaded files is 250 MB.
2. **Premium Plan** - It costs 10 USD for 1 user per month. With each new bought user the shared storage space will get another 10 GB of new storage space. It is possible to buy an extra storage space for the shared storage space for 5 USD per month for every extra 10 GB of new storage space.

3.2.1.1 File Sharing

User can add files on a page, which contains comments, tasks or another type of content so the file is inserted directly into the context of discussion.

User can also insert a link to the file so the collaborators have always a link to the up-to-date version of this file. It is possible to edit an uploaded file online and then just save this file and its up-to-date file is online.

The whole team can synchronize the file library to their computers (see Figure 3.2.1-3). Then when anybody makes some changes on his computer, it automatically updates the others. For using this function the samepage client needs to be installed on the computer. The samepage client is free.

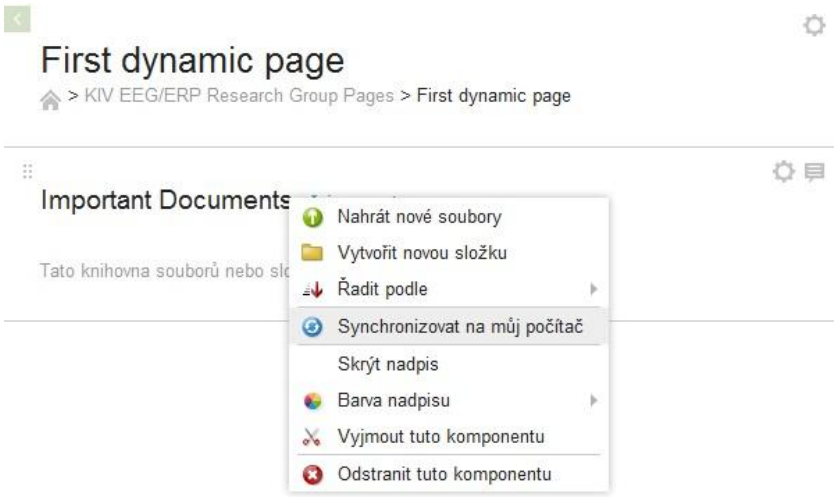


Figure 3.2.1-3: Synchronizing of the file library to the computer

3.2.1.2 Discussion drilldowns

The uploaded files can be inserted to any created page and there can be discussions or comments on the same page. It is also possible to show discussions from multiple pages in one place and then user can click on any comment to visit the page it came from for more context.

3.2.1.3 Sharing and organizing

Admin can set permission for invited users to view, edit, or control the content of pages (see Figure 3.2.1-4). Any page can be also opened for public access with or without edit rights.

The structure of pages can be organized by using spaces to group some pages together.

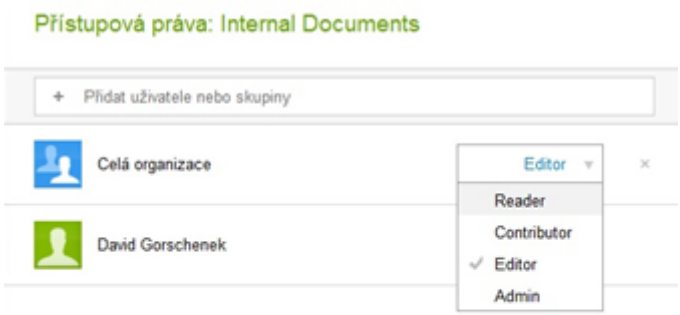


Figure 3.2.1-4: Setting of the sharing rights for the Internal Documents page

3.2.2IBM DeveloperWorks

IBM DeveloperWorks is the premier web-based technical resource and professional network for IT practicioners, students and university faculties worldwide. It has language support in English, Chinese, Japanese, Russian, Korean, Vietnamese, Brazilian Portuguese and Spanish. It is also the place where developers and IT professionals can congregate to connect, share, and collaborate. [5]

With the developerWorks community, it is possible to join the network of millions of IT professionals all around the world. Then it is possible to debate and collaborate through developerWorks groups.[6]

IBM DeveloperWorks tools [6]:

Activities - It is a set of tools, which helps to keep track of all contributions, shared resources and deadlines.

Blogs - It allows members to share their thoughts on particular topics and converse with each other.

Bookmarks - User can use this tool to save, organize and share bookmarks of web pages. The bookmarks are stored in a central repository.

Files - User can upload any type of file and share it with others (specified people, everyone or no one).

Forums - User can put his/her problem in front of the group of people. There are plenty of forums that user can choose.

Groups - Information about groups is mentioned below.

Profiles - User can describe himself/herself (his role, skills and interests). User can then find another user with the same interests.

Wikis - It allows users to share comprehensive information. User can make wiki public or private.

You can see the main page of the user's profile (see Figure 3.2.2-1).

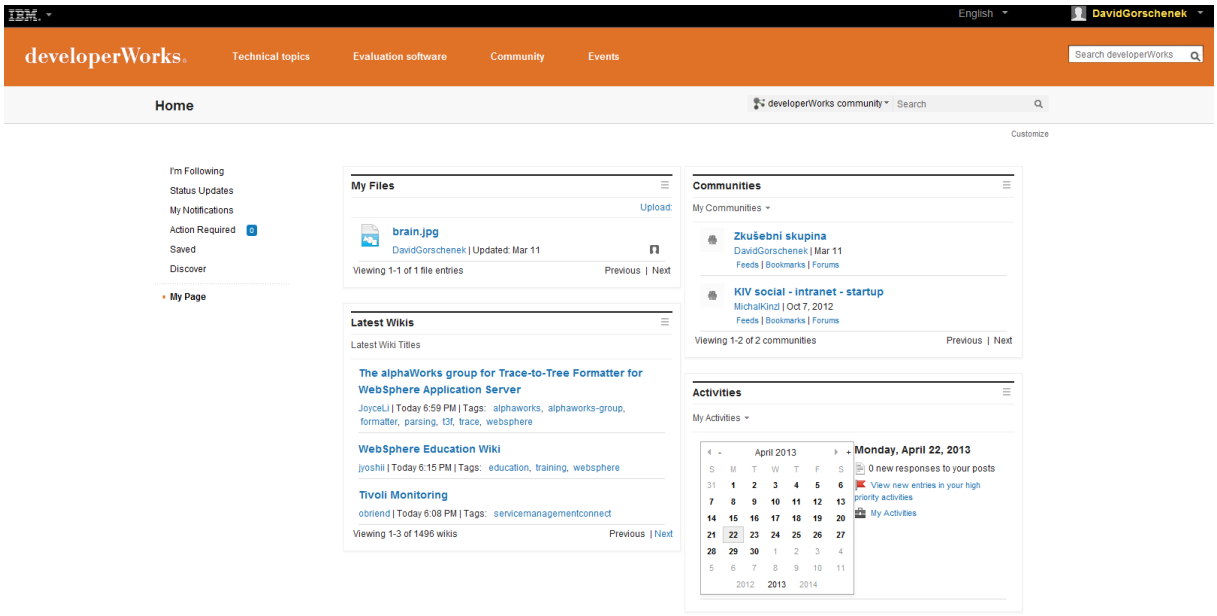


Figure 3.2.2-1: Main page of the user's profile

3.2.2.1 Communities

You can get to the communities by starting a community or by becoming a member of an existing community. Then in *My Communities* menu item you can switch to the communities interface.

On the left side you can see main menu, which contains:

Overview - general information about your group and widgets with all information mentioned below (MessageBoard, Wiki, ...).

MessageBoard - a table with short messages, where you can join discussion to the given theme after clicking on the particular theme.

Members - it contains a list of members of the group.

Wiki - it is an internal wiki with comprehensive information.

Activities - There are stored all activites of the group.

Bookmarks - it is a list of references to other websites.

Blog - it is an internal blog of the community.

Files - there are stored all files of the group.

Feeds - there is an option to insert information from other websites. Users of the group then do not have to leave websites of the group to get new information from other websites.

You can choose one of the three possibilities during the process of the creation of the group:

- *Allows public access, and anyone can join* - it is public group, which anyone can join and becomes a member of the group.
- *Allows public access, but users must request to join* - it is group, which is opened to public for browsing but users have to send request to become a member of the group. All users, who are not members of the group, can download files in the *Files* menu item. But they can not comment messages in *MessageBoard* so there is no chance to spam. *Wiki* and *Blog* can be read only too. Only members of the group can insert comments.
- *Does not allow public access* - it is a group, which is closed to public.

Options of the community:

Customize - a member can add menu items on the left side of the window (Blog, Wiki, ...).

Mail group - an option to send email to all members of the group.

Leave group - an option to leave the group.

Invite others to join - it immediately redirects the member of the group to the site where the member can write email to somebody who the member wants to invite to become a member of the group.

Group actions (edit, delete) - *edit* redirects the member of the group to the same site as during the process of the creation of the group (see above). *Delete* deletes the group.

Integration with social networks is done by containing link named *Share this page (facebook, LinkedIn, Twitter)* in the bottom part of each site of the group. After clicking on the link the log in to

the social network is requested and consequently the link to the active site of the group is sent to the account on the social network.

You can see the main window of the community (see Figure 3.2.2-2).

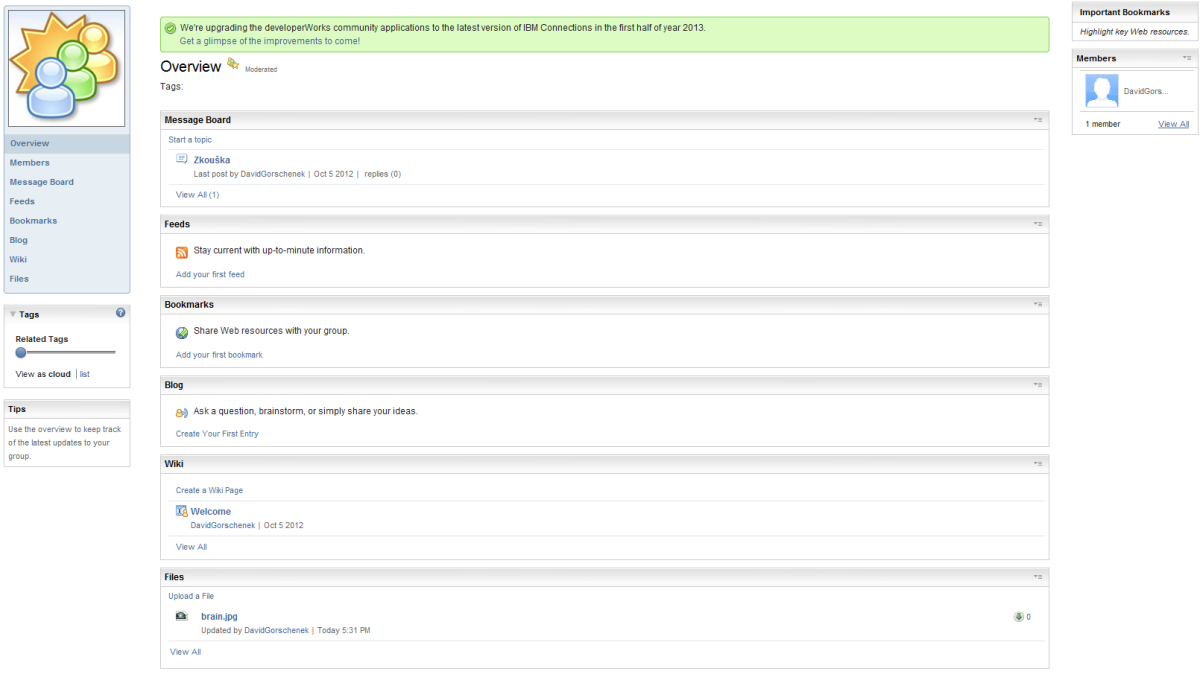


Figure 3.2.2-2: Main window of the community

3.2.3IBM Connections 4.0

IBM Connections is a social software for business use. It allows users to develop and support the network of collaborators and to discuss about new ideas with the comunity of collaborators.[7]

3.2.3.1 Homepage

User has anything he needs in his homepage (see Figure 3.2.3-1). In *My Page* user can have widgets with anything he is interested in (his activities, public activities, etc.). User can also change the layout of the widgets in his *My Page*.[8]

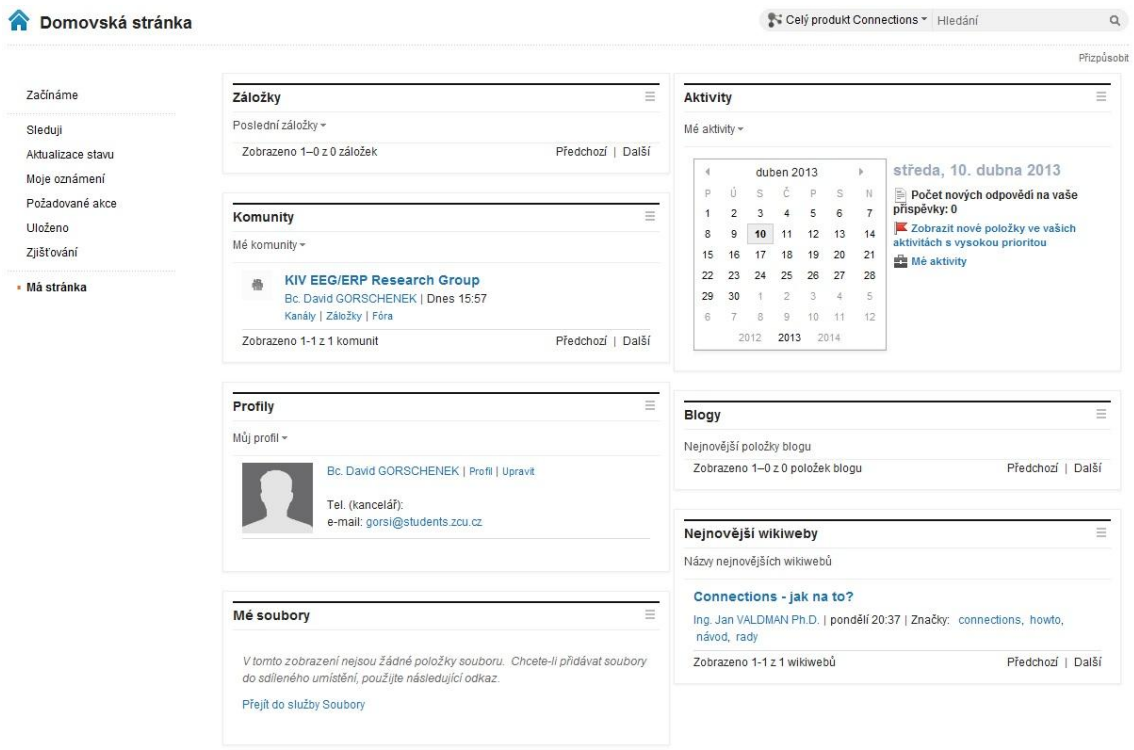


Figure 3.2.3-1: My Page with widgets in user's homepage

3.2.3.2 Activities

Activities allow the project team to organize their work according to the tasks of the project. The collaborators can share working documents and information by creating an activity. The activity allows collaborators to assign and monitor the tasks in the activity. It also allows to publish information about the community and their meeting. Collaborators can add new members to the activity, which allows collaborators to gather all needed resources for the project. It is also possible to set the priority of each task in the activity.[8]

Results from using of the application Activities:

In the Activities application all activities of the user are shown in the *My Activities*. There are both user activities and community activities, which the user is member in. The community activity is specified with the proper label in its name. There is also the *To Do List* across the all activities, which contains the opened to do items, which should be done in the activity. It is possible to change priorities of the activities (High, Medium, Normal[default], tuned out).

While creation of the activity user has to insert the members of the activity. It could be person, community or group. The inserted person, community or group can be author, owner or reader of the activity.

The author can read the content and add items. The owner can add, modify and delete members of the activity, its content or the activity itself. And the reader can only read the content.[9]

After creation of the activity the owner or author can add entry to the activity to share some ideas and information. They can also add to do item, which can be assigned to everyone or to a specific person. The activity can be organized by adding some sections. Each section can contain specific entries and to do items.

3.2.3.3 Blogs

Blogs are internet diaries for sharing information with other collaborators in the community. It allows collaborators to dynamically share news and ideas with other collaborators. They can inform each other about news of their research in their field of interest or they can just provide their knowledge in their field of interest.[8]

Results from using of the application Blogs:

User can create a blog with his/her selected theme of appearance. After creating of the blog the user can add new entry in the created blog. It consists of the title with rich textbox for the text of the entry, where pictures or video can be inserted too and then the user can add comments to the entries of the blog, which will be shown in the blog under the proper entry.

The owner of the blog can also add users to the blog. The new user of the blog could be author, owner or draft.

Author can manage the entries but can not manage the settings of the blog. The owner can manage entries and settings by creating permissions to others. The draft can only save drafts of the entries.[10]

3.2.3.4 Bookmarks

Bookmarks allow users to save, organize and share their bookmarks. User can share all bookmarks or just some of them and user can define, which user can see which bookmarks. User can also browse the collection of bookmarks of other users and based on this he can connect with people with similar interests. IBM Connections allows user to install a button "Add Bookmark Button" to his internet browser. It is also possible to import existing bookmarks into the IBM Connections.[8]

Results from using of the application Bookmarks:

User can notify others with his/her found bookmark by automatically sending email with the link to the bookmark. User can also add a bookmark to the activity, community or to the blog, which provides an easy way of sharing bookmarks among the collaborators.

It is also possible to install the *Add Bookmark Button* to user's internet browser toolbar. Then user can create a bookmark in four steps:

1. Open the web page the user wants to bookmark.
2. Press Add Bookmark Button.
3. Put title, tags and description of the bookmark.
4. Save bookmark, which can be public or private.

3.2.3.5 Communities

Community is a group of people with similar field of interest. The community provides the way of connecting the members to the research team and the community allows members to discuss and share information. The community can be public or private and the owner of the community can control, who can browse the content of the community and join the community. There can be created blogs, wikiwebs, activities, forums or bookmarks in the community, which are connected only with the community.[8]

Results from using of the application Communities:

Every user of the IBM Connections can find a public community of his interest in the organization. Each community page contains the community description and the community can also contain its blogs, forums, bookmarks, files, wikis and activities for the specific community to provide collaboration in the community among its members. In the homepage of the community there are also widgets, which can be organized, added or deleted. The widgets show information about the community. The widgets are *Forums*, *Bookmarks*, *Upcoming Events*, *Members*, *Files*, *Wiki* and *Related Communities*. Member of the community can create a community event, which will be displayed in the *Upcoming Events* widget. The events can be shown in the calendar too.

In the process of starting new community(see Figure 1 in Attachment A) it is need to set the access. The comunity can be public, moderated or restricted.

The public community can be joined by anyone. In the moderated community people must request to join and in the restricted community people must be invited to join this community. [11]

Then it is need to add people to the community by selecting a role and adding people to that role. User can be a member of the community or the owner of the community.

You can see the homepage of the created community (see Figure 3.2.3-2).

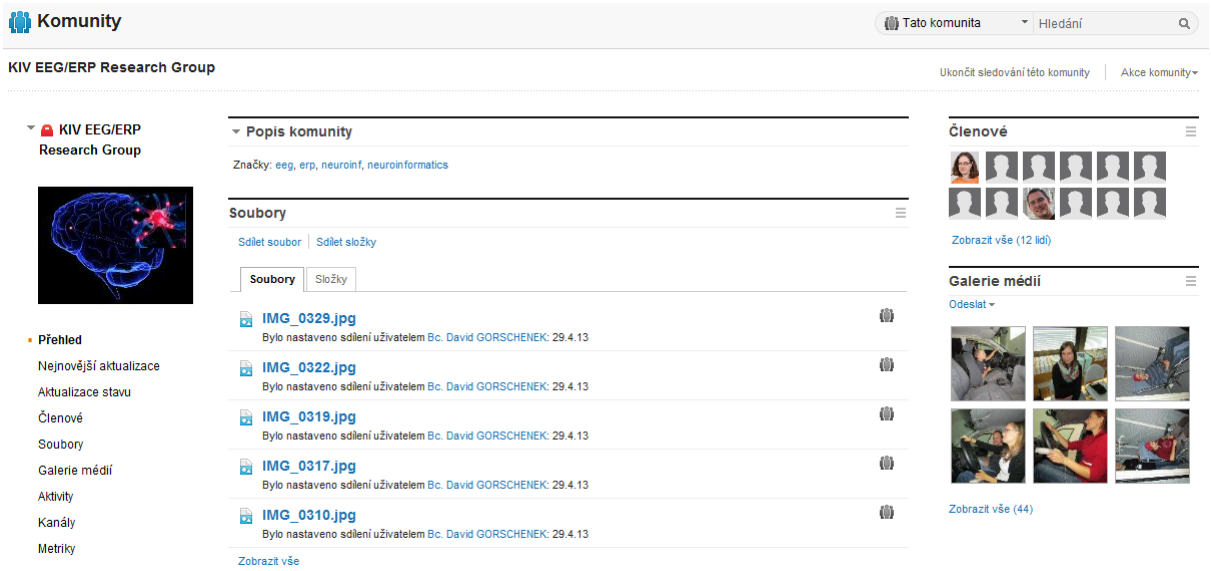


Figure 3.2.3-2: Community homepage

3.2.3.6 Files

The Files application allows users to share and save files in the central storage. It is possible to share files with only selected users. It provides the collaboration without need to send files by email. Users can mark files as favorite and comment them. The uploaded files can be organized in folders and users can track the versions of uploaded files.[8]

Results from using of the application Files:

In the application Files the user can see his own files, shared with him files, shared by him files, community files or public files.

In the process of uploading file it is need to pick the sharing option. The file can be shared with no one (visible to the owner only), shared with people or communities, or the file can be public (visible to everyone). The people or communities, the file is shared with, can be readers or editors of the file.

The readers can see, share and download the file. The editors can download, edit or upload a new version of the file.[12]

The files can be organized in the folders. In the process of creating folder it is need to pick the sharing option too. The folder can be shared with no one (visible to the owner only), shared with people, groups or communities, or the file can be public (visible to everyone). The people, groups or communities can be readers, contributors or owners.

The reader can only read and download files in the folder. The contributor can add files into the folder, delete them (only the files, which the user added into the folder in the past) and show information about files in the folder. The owner can delete all files from the folder or delete the folder.[12]

3.2.3.7 Forums

Forum is online discussion, which is focused on the specific topic. It is mostly used for looking for the new solutions in the research team and for obtaining the opinions of the members of the research team. Forum is also the place, where the members can share their ideas with other collaborators and where they can discuss about common topics.[8]

Results from using of the application Forums:

The created forum can be standalone, which is always public, or associated with a community. In the forum, which is associated with a community, the user has to be a member in the community to be able to contribute to the forum. User can keep track with the forum he is interested in by following it. Then the user will be notified whenever the forum is updated.

After starting a forum the user can start a topic in the forum. If the user wants to ask a question in a forum then he has to check the checkbox *mark this topic as a question* during the process of starting a topic in the forum.

3.2.3.8 Profiles

Profiles is a directory of the members of the organization. It allows user to find eligible users and to connect with them. User can look up another user according to the contact information, professional information or according to his knowledge. The base is to fill own profile, where the user informs other users about himself.[8]

Results from using of the application Profiles:

By looking through the profiles the user can see what the people have in common with him (files, communities, activities). Then the user can follow updates of the person or invite the person to his network of contacts.

Every user can add information about him in the *About me* section. This information should describe user's field of interest and his expertise.

3.2.3.9 Wikiwebs

Wikiweb is a collection of the web pages for the specific topic, which provides collaborators with the central place for dynamic sharing of the information and developing of their ideas. It also supports the collaboration in the research team. The collaborators and members of the wikiweb can add their own web pages or edit and comment the existing web pages, which ensures that the information is always up-to-date.[8]

Results from using of the application Wikiwebs:

In the process of starting a wiki the user can add members of the wiki. The new member can be owner, editor or reader of the wiki.

The owner can read, edit, create, insert tags, recommend and delete pages, insert comments to pages, insert tags to wikiweb and edit the descriprion of the wikiweb. The editor can read, edit, create, insert tags, recommend the pages and insert comments to them. The reader can read, recommend the pages and insert comments to them. [13]

Then it is need to pick the read access of the wiki and the edit access of the wiki. The read access can be for all users including not logged in users or for the wiki members only. The edit access can be for all logged in users or just for the wiki editors and owners.

The content of the wiki can be added by using one of the page actions, which can be *create child of the current page* or *create peer of the current page*. The page can be also printed or downloaded as an HTML file. The user with proper rights can also remove the page or move it to the trash. User can also see comments, versions and attachments of the wiki pages.

3.3 Realization

I chose the IBM Connections 4.0 for the project management because I found out it should be running in the Department of Computer Science and Engineering. This software tool also fulfils all requirements of the research group. IBM Connections 4.0 was being run in the department during my realization and that is why I could realize the solution of project management in IBM Connections 4.0 running in the Department of Computer Science and Engineering.

The members of the research group had some main requirements, which I had to fulfil by using this software tool for project management.

3.3.1 Privacy

The first requirement of the research group was that everything in the community has to be private.

I accomplished this requirement by creating the community as restricted (users have to be invited to join the community). It means that anybody, who is not invited to the community, does not have access to the community and can not browse the content of the community.

3.3.2 File management

The second requirement of the research group was that they need to store some files there, which are not public and the data are just for the need of the research group.

The uploaded files can be sorted in named directories (see Figure 3.3.2-1). The maximum file size of uploaded file is 500MB. User can send file to his profile by pressing *Send File* button and then he can select with whom he wants to share the uploaded file. The members of the community select the community and then type the name of their community (KIV EEG/ERP Research group). Each user can also create a folder, which can be shared with the selected community too. This is the simplest way of sharing files among researchers in the community.

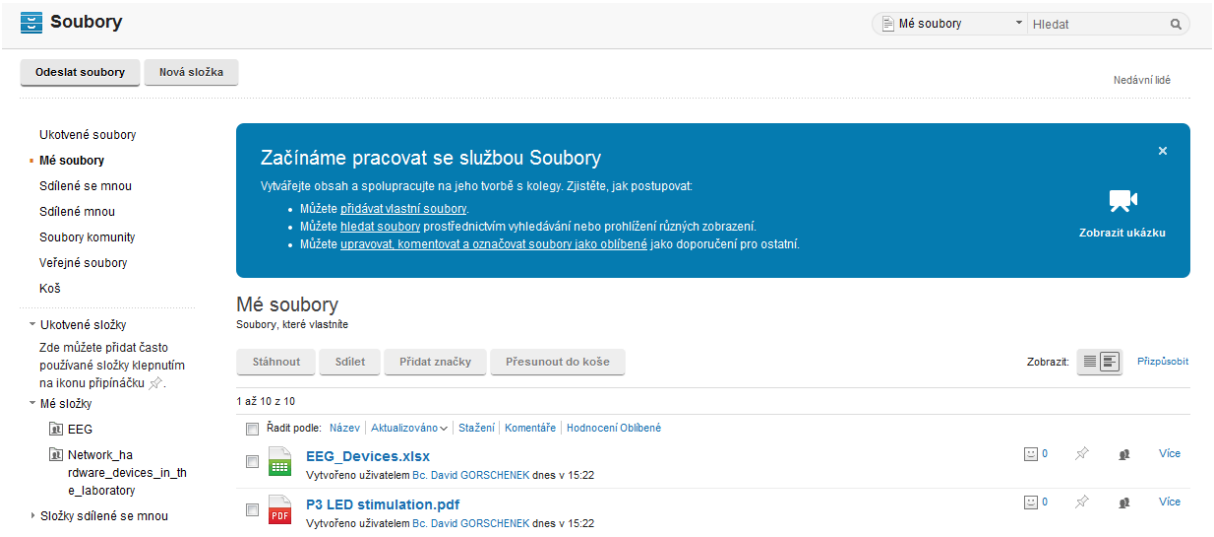


Figure 3.3.2-1: Uploaded files, which are consequently sorted to the folders

Then researchers can see automatically updated shared files and folders by the members of the community (see Figure 3.3.2-2).

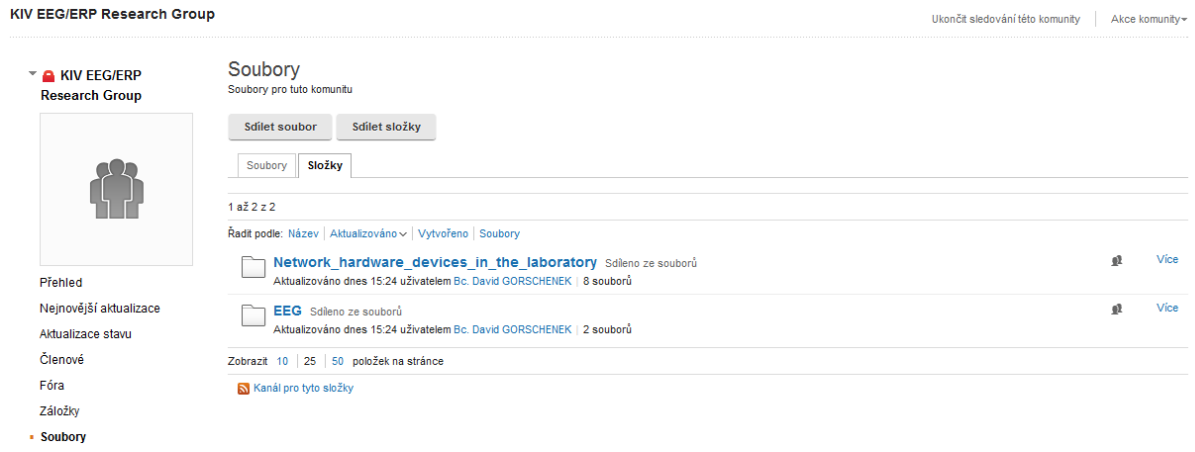


Figure 3.3.2-2: Shared files and folders in the community by the members of the community

3.3.3EEG laboratory management

The next requirement was to manage the EEG laboratory. The researchers want to know, when the EEG laboratory is free and when there is conducted some measurement. They also need to know who is conducting the measurement.

I accomplished this requirement by integrating an existing public google calendar *Laborator UL403* from the *eegzcu@gmail.com* google account. Every member of the research group has access

to this google account and every member can add reservations of the EEG laboratory to the google calendar. The calendar is shown in the community in IBM connections 4.0 by using widget channels. I added a channel for the public google calendar (see Figure 3.3.3-1).

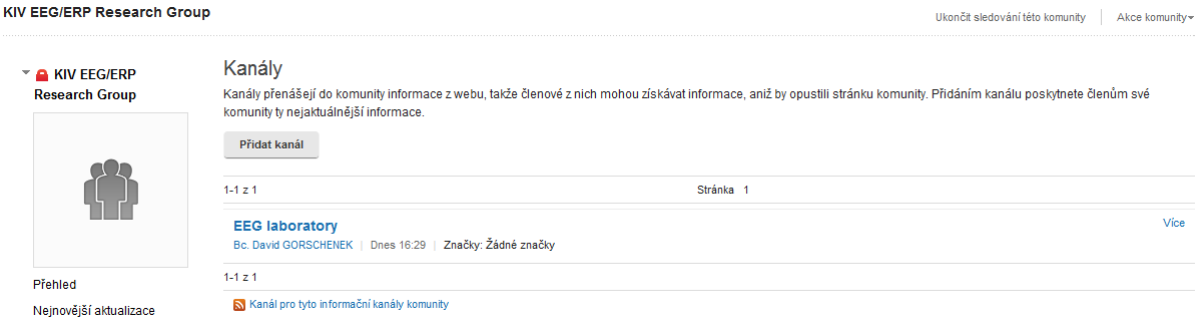


Figure 3.3.3-1: channel for the public google calendar

After clicking on the link of the google calendar the events are shown with the date of creation of the events. After clicking on the proper event the description of the event is shown (see Figure 3.3.3-2).

Figure 3.3.3-2: google calendar event

There is no need to be logged in with a public google calendar, but the calendar is public and anyone can browse it. It seems to be no problem, because the data in the calendar are not secret and to be able to make changes in the calendar the user needs to be logged in so there is no need to be worried about someone creating an unnecessary events in the calendar.

3.3.4Experiment management

The next requirement was to manage the tutorials with information about how to conduct all types of measurements, and to store the methods of processing the electrical activity of human brain in individual measurements.

I accomplished this requirement by creating a folder called *Tutorials*, in which the researchers can upload the suitable files. I also uploaded a private video of measurement in the *Media Gallery* of the community, where the process of measurement is recorded (see Figure 3.3.4-1). The researchers can use the media gallery in the future for uploading their own videos of measurements. I also uploaded photos from the Open Day in the Faculty of Applied Sciences at the University of West Bohemia.

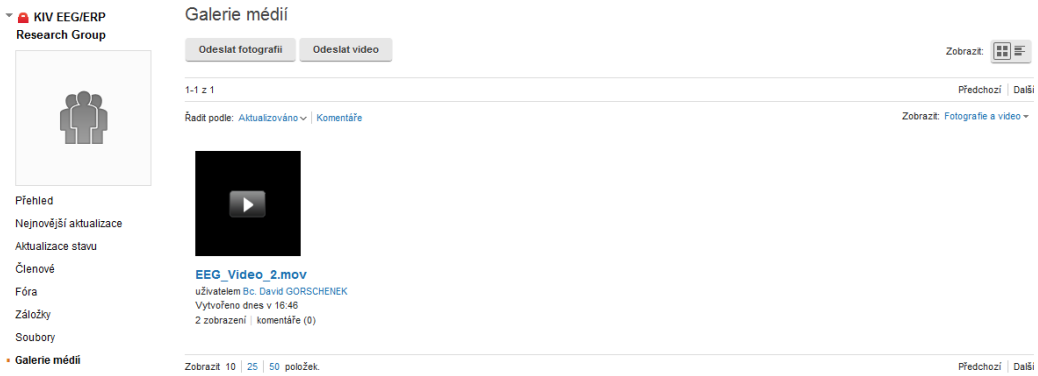


Figure 3.3.4-1: uploaded video of the process of measurement

3.3.5Work management

The last requirement of the research group was to manage their work. They would like to organize their work to see what is happening in the community and what is need to do in the future.

I accomplished this requirement by using the *Activity* application in the community. It allows users to create activity of the community with its deadline, which needs to be accomplished. I created two activities for the community as a requirement of the research group (see Figure 3.3.5-1). One with high priority and the other one with medium priority.

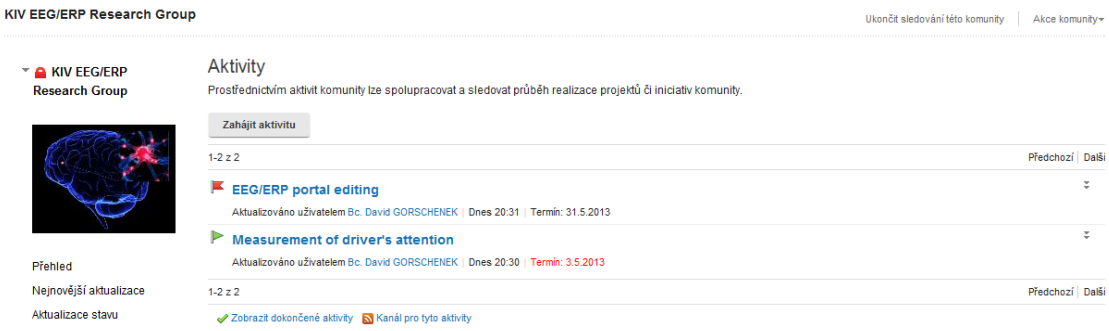


Figure 3.3.5-1: activities of the community with its priorities and deadlines

There is need to create individual tasks in the activity and assign these tasks to members of the community. There could be filled the deadlines of individual tasks too. I created three tasks in the first activity and four tasks in the second activity (see Figure 3.3.5-2) as a requirement of the research group.

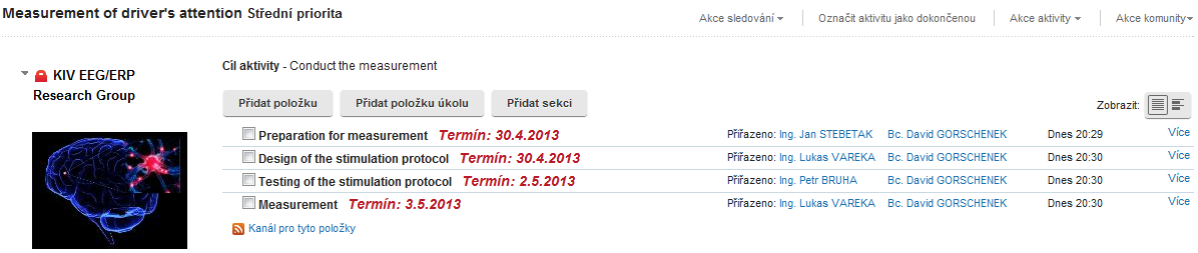


Figure 3.3.5-2: tasks of the activity with assigned people and deadlines

3.4 Conclusion

I accomplished all requirements of the research group by using suitable software tool for the project management of the research group. I added everything what the researchers need to use to the sidebar menu of the community (see Figure 3.4-1). Only one obstacle appeared during accomplishing of this task. It took the department a lot of time to be able to run the IBM Connections 4.0 in the Department of Computer Science and Engineering. It took them a lot of time to integrate it with the university authentication system using LDAP to be able to log in by using university orion login. IBM Connections 4.0 has been running in the department since the 6th of April 2013.

The work with IBM Connections 4.0 is very intuitive and I showed all applications of IBM Connections 4.0 to the members of the research group, which I used for accomplishing their requirements.

Figure 3.4-1: navigation sidebar of the community

4 Presentation of the research

4.1 Introduction

In this chapter you can find the description of the current situation of the presentation of the Czech neuroinformatics node and the current situation of the presentation of the EEG/ERP research group in the Department of Computer Science and Engineering, especially presentation of their software.

Then I analysed presentation International Neuroinformatics Coordinating Facility (INCF) neuroinformatics nodes, presentation of research groups in the Department of Computer Science and Engineering, and presentation of research groups with similar field of research at other world known universities. I designed the structure of presentation websites from the acquired knowledge from the process of analysis.

I also needed to analyse and try the most used content management systems, in which the presentation websites are created. As a most suitable content management system, which met all requirements of the research group, appeared WordPress.

You can find here the description of accomplishment the requirements of the research group by designing presentation websites for the Czech neuroinformatics node. The requirements of the research group are effective presentation of the research, EEG laboratory presentation, effective management of news and events, presentation of the people in the research group and to be in touch with public.

4.2 Current situation

4.2.1Czech neuroinformatics node

Czech neuroinformatics node has a presentation website on INCF. There is only short description of the Czech neuroinformatics node with contacts to the head of the node Václav Matoušek and to the node representative Roman Mouček. INCF is the place, where the link to the newly designed presentation websites will be put because it is the right place, where people can find national neuroinformatics nodes and other national neuroinformatics nodes have links to their national neuroinformatics presentation websites on the INCF too.

There is already a link to the current Czech neuroinformatics node presentation websites on INCF (http://www.cnnn.cz/). But these presentation websites are not maintained and the information on these websites is deprecated. These websites were created in the content management system Plone, which is described below in this section.

The requirement of the members of the research group was that they want to administrate the presentation websites and that is why they do not want to continue with these presentation websites and they want to create new presentation websites, which will be running in the Department of Computer Science and Engineering at the University of West Bohemia. Another reason for creating new presentation websites is that the newly created presentation websites will be created in content management system WordPress, which appeared to be the best solution for the members of the research group according to their requirements (see the comparison of content management systems below in this section).

Structure of the current presentation websites (see Figure 4.2.1-1):

There is some short description of the Czech neuroinformatics node in the homepage.

CNNN - There is a longer description of the Czech neuroinformatics node with introduced chairman profesor Mirko Novák (CTU FTS Prague). Then there is a description of the projects and the field of interest of the national neuroinformatics node.

Congress 2009 - There is only date and place, where the congress took place. Then there are links to websites with more information about this congress.

Partners - There is a list with partners and universities, which participates in the node. There are only their names with links to their own websites.

People - There is a list of people with the place, where they work and their email addresses. The names of people are not links to the sites with description of the person.

Activities - There are only named the fields of activities, which are publications, interesting articles, reports, photos and videos. Again, the names are not links to sites with description of the activity.

Neuroinformatics - There are no information at all (see Figure 4.2.1-1).

Links - There are links to the International Neuroinformatics Coordinating Facility (http://www.incf.org/), Neuroinformatics 2009 – Pilsen (http://www.neuroinformatics2009.org) and to the Neural Network World (http://www.uivt.cas.cz/nnw). Neuroinformatics 2009 - Pilsen contains

some information about the 2nd INCF Congress of Neuroinformatics, which took place in Pilsen in September 2009.

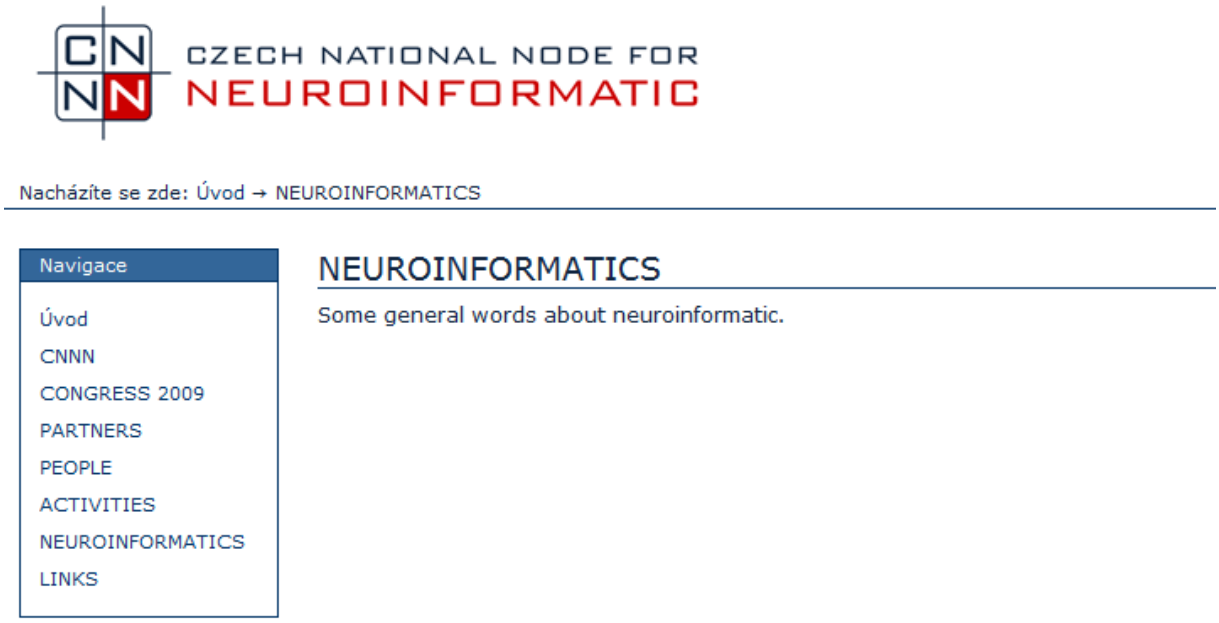


Figure 4.2.1-1: illustration of the deprecated information on the Czech national node for neuroinformatic presentation websies

4.2.2INCF

INCF (International Neuroinformatics Coordinating Facility) was established in 2005 to develop neuroinformatics infrastructure and to improve data sharing. INCF has 16 member countries (Belgium, Czech republic, Finland, France, Germany, India, Italy, Japan, Netherlands, Norway, Poland, Republic of Korea, Sweden, Switzerland, United Kingdom and USA).[14]

4.2.2.1 INCF Software Center

INCF Software Center is a resource for software users and developers in the neuroscience community.[14]

Software Center is accessed to public, it means that everybody can browse through the accessible software tools without registration. But after creation of account user can insert comments, apply for membership in selected development team and download software tools.[14]

Software tool is accessed to public by inserting to INCF Software Center. It is possible to upload documentation and executable files too. Then it is possible to create wiki page and to establish a development team.[14]

The process of software's registration (see Figure 2, 3 in Attachment A):

Required Fields:

- name of software
- brief description of software
- purpose of software
- prerequirements of software - hardware, programmes needed for using of the software
- license - it is possible to determine how others can use the software by choosing appropriate license
- maturity of software - it is possible to choose from experimental, intermediate and stable
- who can view and dowload items in your project when you create them - it is possible to choose from access for anyone who visits the site, access for just a select group and access for logged in users only

Optional Fields:

- topics of software - it is possible to pick from given options
- keywords of software
- link to external website of the software tool
- ease of use - it is possible to choose from given options (anyone can use it, intermediate, steep learning curve)

4.2.2.1.1 EEG/ERP Portal software

The structure of websites (see Figure 5 in Attachment B):

Overview - It contains required fields as purpose, license, prerequirements, ease of use and maturity.

Downloads & Documentation - This menu item is shown to logged user only (it is optional during registration of software).

Screenshots - There are uploaded screenshots of EEG/ERP Portal websites.

Team - There is a list of members of the EEG/ERP Portal group.

4.2.2.1.2 Other softwares

It is Waxholm Space Atlas software and Pandora software, which have more information on INCF Software Center sites in comparison with the EEG/ERP Portal software.

The structure of websites (see Figure 6 in Attachment B):

The *Overview, Downloads & Documentation, Screenshots* and *Team* menu items have similar content to EEG/ERP Portal software, but these softwares contain three extra menu items.

Code Repository - There is a link to the subversion repository of the project.

Bug Tracker - It is possible to browse here the open issues of the team.

Wiki - It is an internal wiki of the team. It contains tutorials, FAQs, News.

After consultation with the members of the research group they decided not to add these menu items because they do not need to have this type of information on the INCF Software Center. They store their private information about management of software projects in the new created community in IBM Connections 4.0.

4.2.2.2 INCF Dataspace

INCF Dataspace is mentioned here only for completeness of the INCF products but it is not my field of study in this thesis.

The purpose of INCF Dataspace is to allow collaboration among researchers by sharing data, files, images, sound records, movies, models and simulations. INCF Dataspace provides a single interface for globally distributed neuroinformatics datasets.[15]

Features[15]:

- Access diverse data repositories from around the world through a single resource. Model is aimed for organisations to put together their repositories into Dataspace. Then Dataspace provides only one namespace, which puts together all these repositories.
- Browse and access data using different user interfaces (Web, File Navigator, Command line).
- Upload and download data from all over the world.
- Set and get arbitrary metadata for files and folders.
- Search metadata.
- Manage large data.

- Keep directories synchronized.
- Create temporary public or private links to share data.

Use cases[15]:

- Access diverse data repositories from around the world.
- Make any local data visible globally or only visible to collaborators.
- Enable data from collaborators to be mirrored and archived.

Usage of Dataspace:

Every user of INCF Dataspace has his own "home collection" called /incf/home/username but he has no storage size available by default. If user wants some storage size, he can attach his own repository to home directory according to the instructions on https://github.com/INCF/ids-tools/wiki/IDS-Data-Server-Setup.

For the process of registration on INCF Dataspace see Figure 4 in Attachment A.

Structure of the INCF Dataspace (see Figure 4.2.2-1):

File - It is possible to refresh the content, to create a new folder, to rename existing folder or to delete existing folder.

View - It is possible to browse the selected directory or file to see info and tags, then it is possible to see access permissions, metadata, gallery, audit or tickets.

Upload and Download - It is possible to upload one file, bulk upload or to add items to cart.

Tools - It is possible to create a public link here.

Apply an action to all selected items - It is possible to add all selected items to the cart or to delete all selected items.

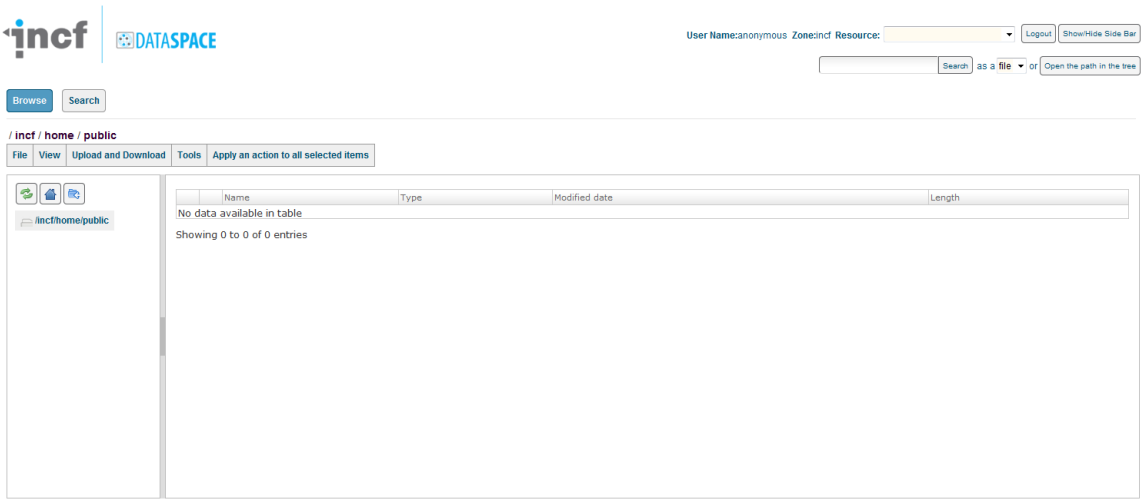


Figure 4.2.2-1: Homepage of user's INCF Dataspace

4.2.3EEG base

The following text is based on [16].

EEG base is a software project of the KIV EEG/ERP research group. It is a system for storing and managing EEG/ERP resources (data, metadata and tools). It is running in the Department of Computer Science and Engineering.

You can see the homepage of EEG base (see Figure 4.2.3-1).

Features:

- Management of EEG/ERP data and metadata
- Management of EEG/ERP experimental scenarios
- Management of tested subject's data
- Storage of signal processing tools

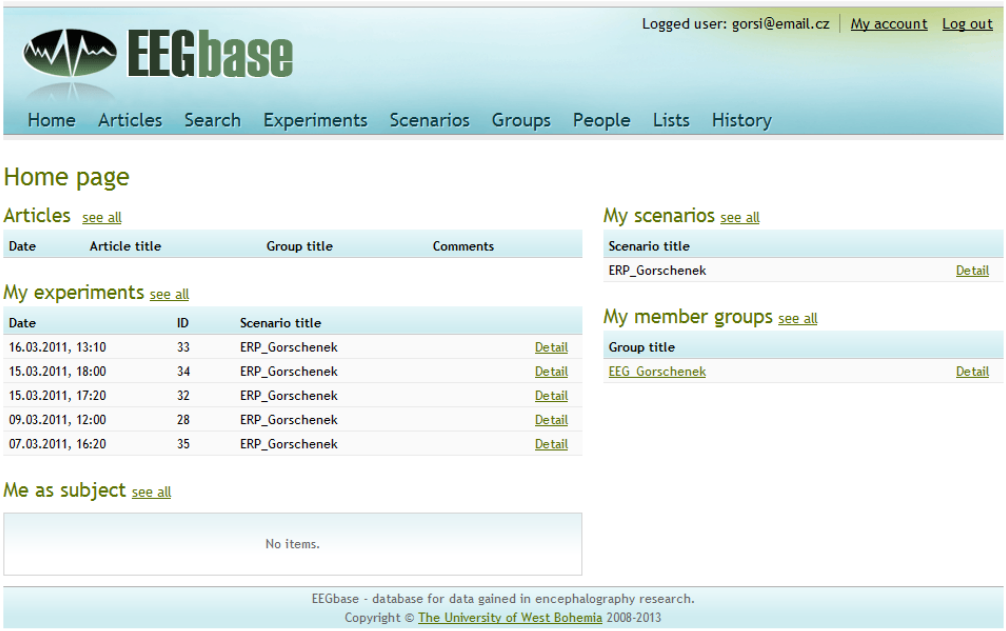


Figure 4.2.3-1: EEG base's home page

4.3 Analysis of presentations

In this section you can find the analysis of presentation of the national neuroinformatics nodes on INCF. Then you can find the analysis of presentation ot the research groups in the Department of Computer Science and Engineering at the University of West Bohemia, and finally you can find the analysis of presentation of the research groups at foreign well known universities. These reasearch groups have similar field of interest as the EEG/ERP Research Group in the Department of Computer Science and Engineering at the University of West Bohemia.

4.3.1INCF neuroinformatics nodes

Most of the countries have similar structure of their presentation websites. The links to their presentation websites are on the INCF National Nodes website (http://incf.org/about/who-we-are/nodes).

Structure of the national nodes presentation websites:

France has only *Overview* on their websites with some brief information about their group.

The Dutch has a *calendar with actions*, which can be connected with google calendar. This could be very helpful for organisation of the upcoming events (see Figure 7 in Attachment B). Their presentation websites are designed in the content management system Drupal.

Most countries in INCF have links to their presentation websites, which are mostly called neuroinf or neuroinformatics (e.g. *neuroinformatics.be, neuroinformatics.nl, neuroinformatics.org.uk, neuroinf.fr, neuroinf.it, neuroinf.jp, neuroinf.pl, g-node.org*).

Neuroinformatics or *neuroinf* seems to be the most suitable name of the domain for the Czech neuroinformatics node. The requirement from the Department of Computer Science and Engineering was that the presentation websites has to be running in the department and that is why the presentation websites contains *.kiv.zcu.cz. Because of that requirement there is need to change the name of the domain from the most suitable *neuroinf* or *neuroinformatics* because the name of the domain should display that it is presentation websites of the Czech neuroinformatics node and not only the neuroinformatics node of the Department of Computer Science and Engineering at the University of West Bohemia. After consultation with the members of the research group we decided to change the domain name to *czech-neuroinf-node*. The whole address of the presentation websites of the Czech neuroinformatics node is *czech-neuroinf-node.kiv.zcu.cz* (http://czech-neuroinf-node.kiv.zcu.cz/).

4.3.2 KIV

4.3.2.1 KIV Research software

It is one of the ways of presenting software of the research group. The EEG/ERP research group at the University of West Bohemia has presentation websites of the EEG/ERP Portal software on INCF Software Center.

4.3.2.1.1 Registration of the new software

Required fields during register of new software are short name of the software, type of license and year of creation of software. Lately you can add description of the software.

There are at the sites of softwares:

- Short header of the software (author, date of the last edit, year of creation of software, size of the software, number of downloads, short name of the software)
- Then description of the software follows short header.

4.3.2.1.2 Comparison with INCF Software Center

- INCF also contains Overview of the software with its description.
- Then you can add members of this software and logged people can send request for joining this team.
- INCF contains own bookmark for documents and files, which can be downloaded so it is not all at the front page (at the front page there is just description of the software).
- In INCF you can also upload some screenshots of your software into proper bookmark called screenshots.
- In INCF you can also set up wiki with some information, tutorials or news. Then you can put a link into the code repository.
- INCF seems to me as a better option because of more possibilities with registred software and because of the fact, that at the sites of INCF there are groups involved in neuroscience and it is also international node of these groups.
- After consultation with the members of the research group they decided not to register their software in the Department of Computer Science and Engineering and to keep their presentation of the software in more suitable INCF Software Center.

4.3.2.2 KIV Research groups

The research in the Informatics department at the Faculty of Applied sciences is oriented to following fields[17]:

- Applied Computer Geometry (Centre of Computer Graphics and Visualization)
- Distributed Systems, Simulations, and Software Engineering
- Embedded Systems, Specialized Hardware, and Computer Networks
- Text-Mining Research Group
- Intelligent Communication Systems (Laboratory of Intelligent Communication Sysems)
- Medical Applications (Medical Information System)
- Human-Computer Visual Interaction (Centre of Computer Graphics and Visualization)

4.3.2.2.1 Centre of Computer Graphics and Visualization

Centre of Computer Graphics and Visualization focuses its research on algorithms and mathematical foundations of computer graphics, data and information visualization, human computer interaction and applications of computational geometry.[18]

Structure of their websites (see Figure 8 in Attachment B):

Home - There is a profile of the group, names of the projects' leaders, their adresses, contacts. Then there is some information about history of the group, their awards and students' awards.

People - There is a list of people with their photos. After clicking on particular person more information about him is shown (email, number of office, phone number) including his publications, projects, in which is involved, his field of research and projects, in which is member.

Grants - There is a list of grants, which is divided into ones that are in progress and ones that are finished.

Research - It is divided into the active research areas and inactive research areas. After clicking on particular research area, description of the research, members and projects related to this research are shown.

Publications - There is a list of publications, which is divided according to published years.

Education - There is a list of subjects. After clicking on individual subject, the website of the subject is shown.

Seminars - There is a list of seminars and conferences.

Vacancies - There are some job offers to be involved in grants solving.

Links - It is divided into links to the websites of the University of West Bohemia and of the Faculty of Applied Sciences and into links to the projects of the group.

Informal - There is a list of informal meetings of the group.

Files - The files are divided into folders.

4.3.2.2.2 Text-Mining Research Group

Text-Mining Research Group focuses on knowledge mining from texts.[19]

Structure of their websites (see Figure 9 in Attachment B):

Home - There is only a picture of the group.

Then there are *About us, People, Research, Publications, Download, Links* with the content as the research group above. *Links* contains links to some dictionaries on-line and to other research groups. *Publications* are divided according to published years too.

4.3.2.2.3 Laboratory of Intelligent Communication Systems

Laboratory of Intelligent Communication Systems focuses on acquiring both applied and theoretical results in the areas of intelligent processing of text data and pictures. They primarily focuse on the task of improving web searching by using semantic information, and using semantic information in language modelling.[20]

Structure of their websites (see Figure 10 in Attachment B):

Main page - There is some information about the group and there are some links to other menu items.

Staff members - There is only a list of people without links.

Research - There is a list of projects and conferences.

Downloads - There is a list of files to download.

Publications - The publications are divided according to the people, who published the publication.

4.3.2.2.4 Medical Information System Research Group

The Medical Information System Research Group is a part of the Medical Applications Research Group at the Department of Computer Science and Engineering at the University of West Bohemia in the Czech Republic. Medical Information System Research Group focuses on design and development of the Medical Research and Education Information System.[21]

Structure of their websites (see Figure 11 in Attachment B):

Home - There is some information about the group and contacts to the group.

Publications - There are publications divided according to the published years.

Partners - There is a list of collaborators.

Members - There is a list of people without photos. After clicking on the particular person, his publications are shown.

Then there are *Research* and *Projects* tabs with corresponding information.

4.3.2.2.5 Embedded Systems, Specialized Hardware and Computer Networks

This research group focuses on process automation networks, sensor networks, computer-aided design of embedded systems, reconfigurable/programmable embedded systems, design of low-power systems, architectural and compiler techniques for embedded systems, and Internet-based embedded systems.[22]

Structure of their websites (see Figure 12 in Attachment B):

Home - There is some general information about the group and about the embedded systems in general.

People - There is only a list of people without links.

Publications - There is a list of publications, which is divided according to the published years.

Functional Samples - There are some pdf files to download (e.g. communication module HART).

Contact - There is an adress and email of the docent Vavřička.

Research - There is some general information about the field of research and there are also some files about particular research to download.

Links - There is nothing in this menu item.

4.3.2.2.6 Distributed Systems, Simulations, Software Engineering

This research group focuses on exchanging information that concerns research topics in the given areas of Computer Science.[23]

Structure of their websites (see Figure 13 in Attachment B):

Home:

- *Members* - There is a list of members of the research group, which is divided according to the graduation level.

Seminars - There is a list of meetings to improve cooperation among the group members and to share knowledge acquired in individual projects. The seminars are divided into planned seminars and older seminars.

Research:

- *Projects* - There is a list of projects, which is divided into currently active projects and past projects.

- *Publications* - There is a list of the most important publications of the research group and it is divided into categories of software components and discrete simulation and dependability.

- *Components* - There is some basic information about current work of the researchers on the software components.

Resources:

- *Conferences* - There is a table, which lists conferences of interest to this research group.

- *Links* - There are some links with sources of interesting information for the researchers.

- *Software* - There is possibility to download software produced as a part of their research. There is for example C-Sim, which is a tool designed for discrete-time simulations. Its equivalent in Java programming language is J-Sim, which can be downloaded too.

Internal:

- *Acknowledgements* - There is a list of acknowledgements that are proper for research work supported by one of their current (or past) projects and grants.

- *DSS Library* - There is a list of books, conferences and journals related to the research of the group.

- *Emails archive* - There is a link called *direct access*, which redirects to the empty website.

4.3.3 Foreign universities

In the following chapters I describe presentation websites of the research groups of five major universities all over the world. It is Oxford University, University of Cambridge, Massachusetts Institute of Technology (MIT), Harward University and Boston University. I focus on the research groups and departments at the universities with similar field of interest to the neuroscience group at the University of West Bohemia.

4.3.3.1 Oxford University

Oxford university is one of the oldest universities all around the world. Oxford university was established at the beggining of the 11th century. The research of the university is divided into four divisions - humanistic, physical-mathematical-natural, medical and social sciences.[24]

4.3.3.1.1 Nuffield Department of Clinical Neurosciences

The Nuffield Department of Clinical Neurosciences was established in 2010. It was created by putting together the Department of Clinical Neurology, the Nuffield Laboratory of Ophthalmology, the Nuffield Department of Anaesthetics and the Oxford Centre for Functional Magnetic Resonance Imaging of the Brain (FMRIB).[25]

Structure of their webistes (see Figure 14 in Attachment B):

About - Introduction of the group and their collaborators.

News - Information about upcoming events.

Events - There is a list of all events divided according to the months.

Courses - There is a list of announced courses with their overview, organisers, course fee and course location.

Research - There is a summary of the themes of research. After clicking on particular theme of research, more information about the concrete theme of research is shown.

Publications - There is a list of recent publications but you can find an old publication too by using search field in the right side of the website. After clicking on particular publication description, year of publication, volume and number of pages are shown in the popup window.

Study with us - There is shown some information about research group's involvement with teaching medical students. Then there are some study opportunities for clinical and non-clinical postgraduates and they also offer a range of courses to clinicians and other healthcare professionals seeking to develop their skills.

Our team - There is a list of people, their photos and for each person his function in the group. After clicking on the person more information about particular person is shown (his field of research, his results and plans in his research).

Structures of the websites of all research groups at the Oxford University are very similar. There are overview of the group, list of members, links to posts with upcoming events and news about researchs and results of the researchs of the group on each group's website.

4.3.3.2 University of Cambridge

University of Cambridge was established at the beggining of the 13th century. This university is well known because of the greatest scientists, such as Isaac Newton, Charles Darwin, Ernest Rutherford, Alan Turing or James Clerk Maxwell.[26]

4.3.3.2.1 Cambridge Neuroscience

The neuroscience at Cambridge has a long history and they achieved many goals in their history. But the Cambridge Neuroscience research group itself was established and launched in 2007.[27]

Structure of their webistes (see Figure 15 in Attachment B):

About - Introduction of the group and its field of research. Then there is information about history of the neuroscience at Cambridge.

Research and Collaboration - There are links to any of the five core themes of the neuroscience at Cambridge. Then there is a list of some research fields, in which the neuroscience group at Cambridge collaborates with companies, such as GlaxoSmithKline, Microsoft or Toshiba.

Directory - It is possible to find any researcher at Cambridge according to the department, institute or keywords. There is also a list of all members and a list of principal investigators. The list of people contains their photos and field of research for each person. After clicking on the person more information about his field of research is shown and there is listing of keywords for the particular person, which could be used for looking for this person in the database by typing these keywords.

News, events and seminars - There are some lectures, seminars, talks or some vacancies that may be of interest. Then there is an archive with latest news of the neuroscience at Cambridge and an archive with all news what so ever, which is divided according to years of published. Then there is also an archive with events and a list of upcoming events.

Information for... - There is some information for people, who want to apply for a job, then some information for students, researchers and media.

On their websites there is a picture, which serves as a link to the research group's account on the twitter.

4.3.3.3 Massachusetts Institute of Technology

Massachusetts Institute of Technology (MIT) is one of the most prestigious universities of the world, especially for its research in the technology field.

4.3.3.3.1 Department of Brain and Cognitive Sciences

The Department of Brain and Cognitive Sciences at MIT was established in 1964. The department puts together the neuroscience, biology and psychology. They put together these disciplines so they could study specific aspects of the brain and mind together.[28]

Structure of their webistes (see Figure 16 in Attachment B):

About - Introduction of the group and its field of research. Then there is information about history of the Department of Brain and Cognitive Sciences.

Research - There is presentation of the field of research of the department, overview of the research themes and there is also a list of members, which contains only information about the field of research of the whole team of collaborators.

Academics - There are some learning opportunities for undergraduate, graduate and postdoctoral students.

People - There is more information about each member of the department.

News and events - There is video archive, information about upcoming events and actualities about whole department. Then there is a calendar of events in the given month. There is also a possibility to comment news (for logged people only). There are links to newsletters in pdf file formats. This is one of the way of presentation of the research group.

Diversity and outreach - the Department of Brain and Cognitive Sciences offers a number of science outreach programs in collaboration with the Department of Biology. These programs offer practical activities for high school science teachers and their students, summer workshops for high school students, laboratory training and summer research opportunities for high school science teachers and summer research internships for undergraduate students from other universities.

Giving - There is some information about faculty and department and people can donate money here.

4.3.3.4 Harvard University

Harvard University was established in 1636. It is the oldest institution of higher education in the United States. It is also one of the biggest university all around the world with more than 360 000 alumni around the world.[29]

4.3.3.4.1 Center for Biomedical Informatics

The Harvard Medical School (HMS) Center for Biomedical Informatics (CBMI) is a research center within the Harvard Medical School, which supports collaboration in biomedical informatics among the researchers. CBMI was established in 2005 and the CBMI conducts research on biomedicine and the computer and information sciences.[30]

Structure of their websites (see Figure 17 in Attachment B):

Home - There are some links to the research of the center, education and training, resources and about the CBMI research center. At the bottom of the page there is a short list of news and events of the center.

About CBMI - There is a description of the mission of this research center. Then there is a description of the research center itself.

Research - Three diverse and interconnected areas of investigation are described here: Bioinformatics, Clinical Informatics and Translational Science.

News and Events - There are short descriptions of news and events with links to the detailed information about them. News and Events are not sorted according to the years or months, but after clicking on the events I found out that the newest event is in the first place in the list, but the newest event does not have to be the most actual event.

Education and Training - The CBMI research center trains students in several programs (Biomedical Informatics Research Training program, Bioinformatics and Integrative Genomics program).

Resources - There is a table with resource name and corresponding resource comments. The resources are some tools, charts, records or databases.

4.3.3.5 Boston University

Boston University is one of the largest private universities in the United States. It is mainly a research university and it is located in Boston, Massachusetts. Boston University was established in the 19th century. Boston University has over 33 000 undergraduate and graduate students from more than 140 countries, 10 000 faculty and staff, 16 schools and colleges, and 250 fields of study.[31]

4.3.3.5.1 Center for Neuroscience

The Center for Neuroscience was established in 2007. The center is interested in experimental and theoretical-computational approaches, which include molecular, cellular, systems, behavioral, and cognitive levels of analysis. The aim of the center is to expand our knowledge of fundamental mechanisms of brain function and use it in the practical applications such as treatment of neurologic and psychiatric disorders and development of new directions in educational practice.[32]

Structure of their websites (see Figure 18 in Attachment B):

Homepage - There is a description of the Center for Neuroscience with its history and description of the field of research.

Executives - There is a Founding Director of the Center and Chair of the Executive Committee of the Center for Neuroscience and then there are Founding Executive Committee Members. All members are links to their homepages.

Current Center Supported Research - There is always the name of the research (e.g. Addiction) and its appropriate working group (e.g. Addiction Working Group) with the description of the research.

Contact - There is some information of the Center for Neuroscience to contact them.

4.3.4Conclusion - structure of the presentation websites

I designed the structure of the presentation websites of the Czech neuroinformatics node according to the accomplished analysis. Then I discussed this structure with the members of the research group in the Department of Computer Science and Engineering at the University of West Bohemia and we made few changes in the structure to fulfil their requirements.

4.3.4.1 My design

Home - Introduction about field of research of the Czech neuroinformatics node.

News & Events - There are posts with news of the node and there are also upcoming events.

Research - There is a list of projects and people, who work on particular project (it is a list of people, each person is a clickable link to the website with more information about this person).

Publications - There is a list of publications of the national node.

Grants - There is a list of grants, which this group is solving.

Members - There is a list of people with their photos, email and with an optional field, which is their role in the node. Names of the people are clickable links to the websites with more information about particular person.

About - There is a photo gallery of the EEG laboratory in the Department of Computer Science and Engineering at the University of West Bohemia.

Contact us - There is a simple form for sending an email to the node's email address, which is *eegzcu@gmail.com*.

4.3.4.2 Changes

After consultation with the members of the research group we decided to add another menu item - *Software*. There is a link to website, where it is possible to download this software.

Another requirement of the members of the research group was to rename menu item *Research* to *Projects* because it is more suitable name due to the fact, that there is a list of projects under this menu item.

Last requirement of the members of the research group was to divide menu item *Members* into *Members* and *Cooperation*. Both this menu items have two subitems - *Individuals* and *Institutions*. The Czech neuroinformatics node has its own members, who could be members of some institution, but the node has also cooperators, who could be also members of some other institution. This requirement was to distinguish these people to each other and these menu items with their subitems is the way how it is done.

Please find the detailed description of the websites and menu items below in section 4.5 Creation of the websites.

You can see menu items of the presentation websites (see Figure 4.3.4-1).

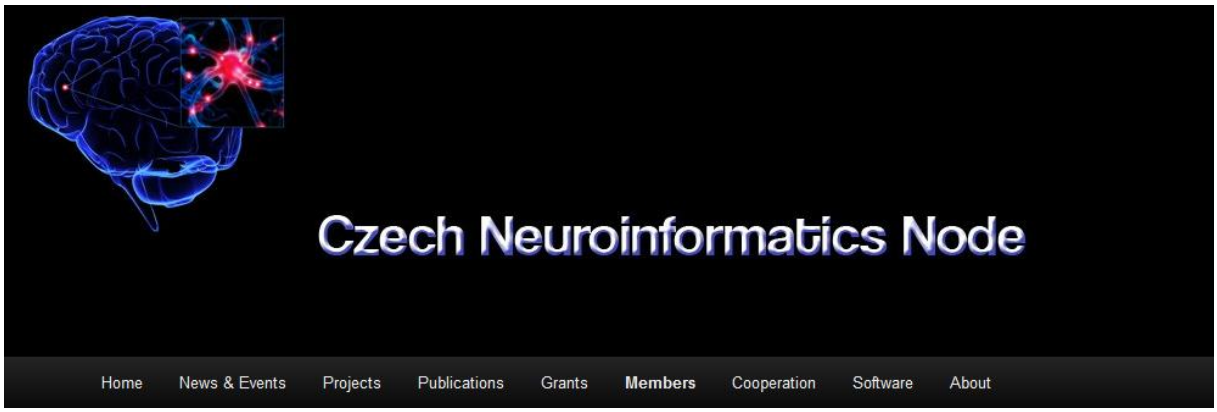


Figure 4.3.4-1: menu items, which represent the structure of presentation websites

4.4 Content Management Systems

Content Management Systems (CMS) are used to present information on the websites. It allows publishing and editing content of the websites. I chose four well-known and the most used free content management systems to compare their functionality and ease of use and to pick one of them for creating presentation websites of the Czech neuroinformatics node.

I used all described content management systems, I tried to edit content of the pages in each system, and to edit appearance of the pages. I also checked number of options of each system by using it. I would need more time to try all described content management systems for longer time, but I made comparison of the systems from practical using of these systems.

4.4.1PLONE

It is a free content management system (CMS). It can be used for designing of various types of websites, including blogs and eshops. Plone allows users to create and store information on the public websites using just web browser. Plone offers many modules add-ons. Plone integrates with Active Directory, Salesforce, LDAP, SQL, Web Services, Oracle. It is built on application server Zope, which is written in Python. Plone is mainly designed in Python, however there are used other languages too (JavaScript, XML).[33][34][35]

See example of the Plone website on Figure 19 in Attachment C.

You can see administrative interface of the website (see Figure 4.4.1-1).

Features[33][34][35]:

- Supports HTML5.
- Inline editing using web browser.
- Supports including of discussion and comments.
- Versioning.
- Full-text indexing of Word and PDF documents.
- Supports Wiki.
- Integrated search catalog (all content is indexed).
- Drag & Drop rearrangement of the content.
- Export of the configuration of the website into XML.
- Content is automatically formatted for print.
- Supports RSS feed.

Results from using:

- Plone seems to have all needed functionality, but editing of the content appears to be difficult and not intuitive in comparison with system WordPress.
- The appearance of the websites is very difficult to edit in comparison with other described content management systems (just change the logo is not so easy).

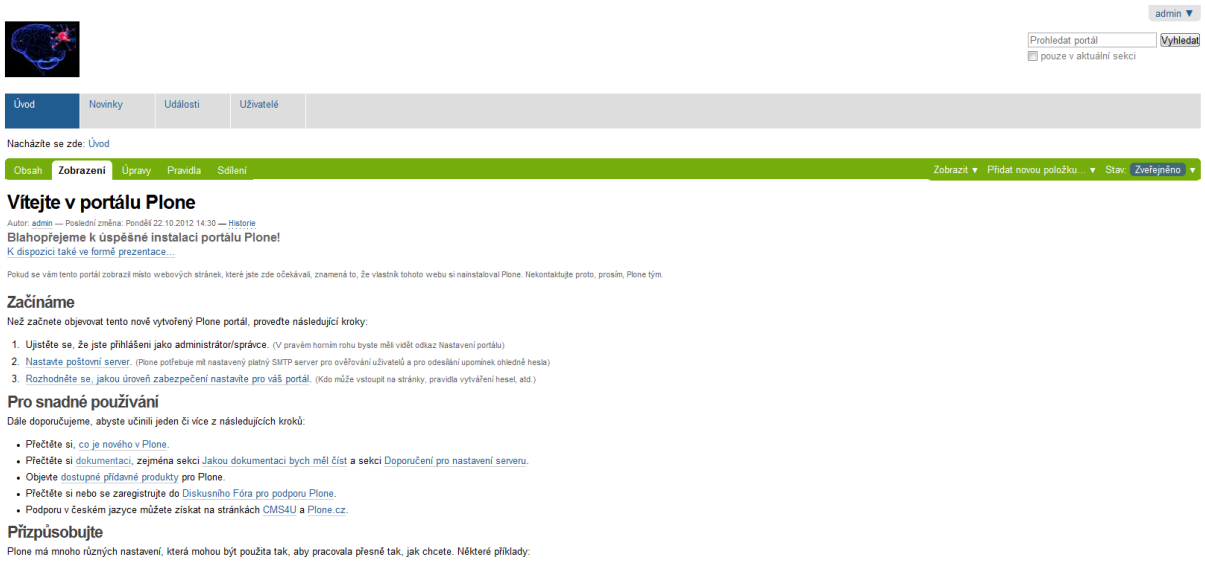


Figure 4.4.1-1: Example of the administrative interface of the website

4.4.2WordPress

WordPress is open source project, which began in 2003. It started as a blogging system but today it is used for managing the whole content of websites. WordPress contains a big amount of plugins, widgets and themes. WordPress is built on PHP and MySQL. 16.7% of internet websites, which were evaluated as top million websites by Alexa Internet company, use WordPress. 22% of all newly created internet websites have used WordPress since August 2011.[36][37]

See example of the WordPress website on Figure 20 in Attachment C.

You can see administrative interface of the website (see Figure 4.4.2-1).

Features[36]:

- Possibility of easy instalation of new themes and switching between themes.
- Big amount of plugins (18000 plugins in database).
- Supports widgets, which allows to put additional functionality to websites.
- Built-in registration system of users, which allows users to register and consequently to insert comments.
- It is possible to create new theme in photoshop. Individual layers just have to be specifically named.
- Respects standards of XML, XHTML and CSS.

Results from using:

- First, It is necessary to install Instant WordPress on your local machine. It changes operation system into WordPress development server. It contains built-in Apache web server, PHP and MySQL intalations, which are automatically launched and stopped. The folder containing Instant WordPress could be copied into flash drive to have WordPress with all the time.
- It is easy to install and launch WordPress on local machine(only one .exe file).
- It contains many themes of appearance with easy editing.
- It contains many plugins.
- It is possible to create whole new theme of appearance.
- It is possible to close the option to comment posts for unregistered users.
- It is possible to lock some posts with password from the public.

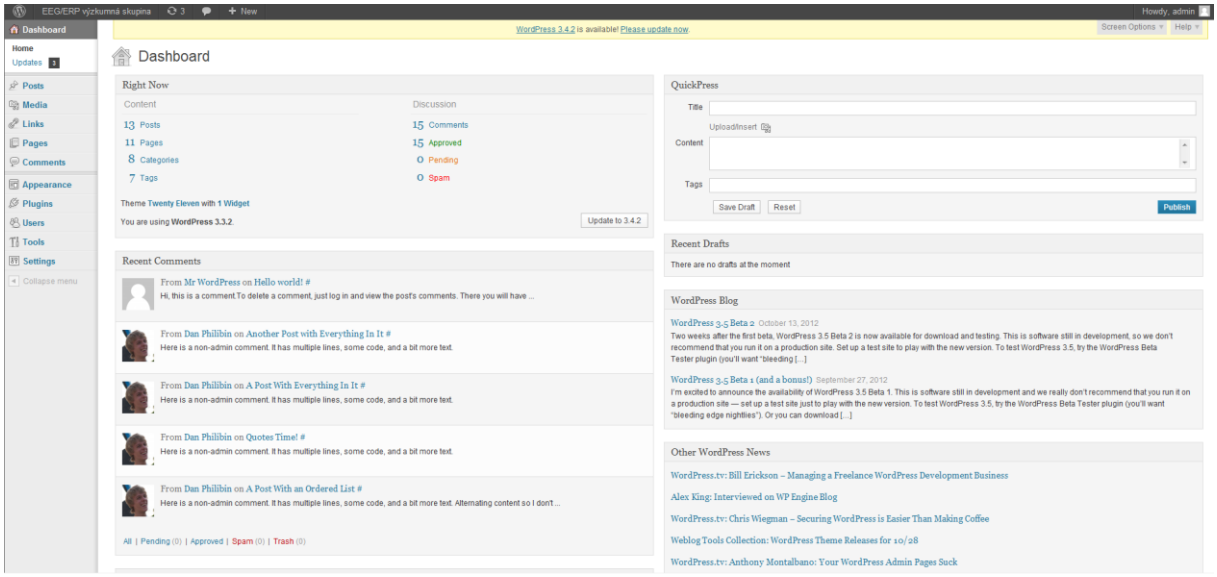


Figure 4.4.2-1: Example of the administrative interface of the website

4.4.3Joomla!

It is open source software for managing of the website's content. It is written in PHP and uses MySQL database. 2.8% of all internet websites use content management system Joomla!.[38][39]

See example of the Joomla! website on Figure 21 in Attachment C.

You can see administrative interface of the website (see Figure 4.4.3-1).

Features[38][39][40]:

- Supports indexing of websites.
- Supports RSS feeds.
- Possibility to design printable version of website.
- Creating and displaying news, blogs, discussions, surveys and calendars.
- Implements searching within the webserver.
- Contains registration system, which allows users to configure their personal settings. It is possible to choose one of nine user's groups with various types of access.
- Possibility to set banners on websites by using Banner Manager.
- Contains built-in help section, which assists user to find everything what he needs.

Results from using:

- Firstly, it is necessary to install XAMPP to run Joomla! on the local machine. XAMPP contains Apache server, MySQL database and PHP.
- Then it is necessary to create new database in phpMyAdmin. Consequently this database is used during installation of Joomla!.
- After installation it is needed to launch services Apache and MySQL.
- Editing of the website's content, adding additional functionality and change of appearance is more complicated in comparison with content management system WordPress.
- There are many plugins, which offer additional functionality. But their installation is not so easy as in case of WordPress.
- Whole content of websites is divided into sections. Consequently each section is divided into categories and then each category is divided into items (Section -> Category -> Items).

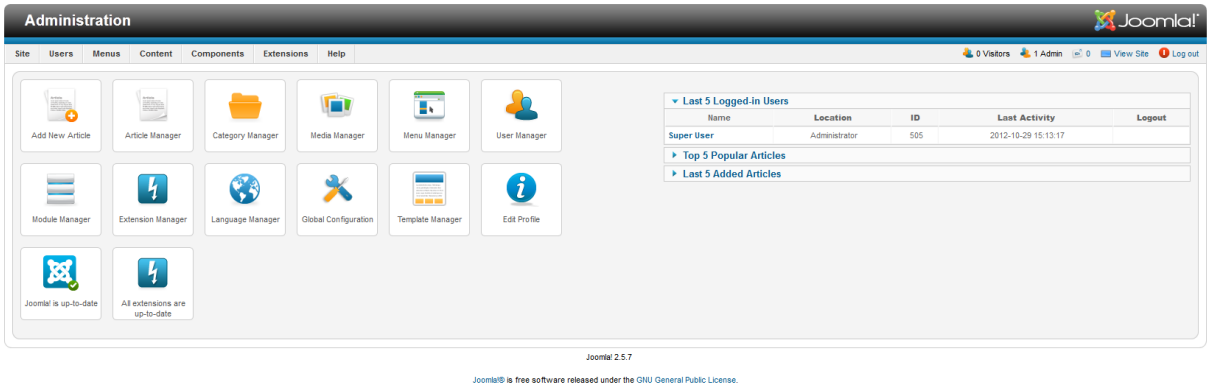


Figure 4.4.3-1: Example of the administrative interface of the website

4.4.4Drupal

It is another content management system. It allows to create internet newsletters, blogs, eshops and other complex systems. It is written in PHP. It supports MySQL and PostgreSQL databases. More than 2% of all internet websites use content management system Drupal.[41][42]

See example of the Joomla! website on Figure 22 in Attachment C.

You can see administrative interface of the website (see Figure 4.4.4-1).

Features[42][43][44][45]:

- Supports RSS feeds.
- Contains about 18200 addons, which add new functionality. These addons also customize the behavior and appearance of the websites.
- Allows to create blog, eshop or forum.
- It is built on modular system. It is small kernel and modules. Modules are analogy to plugins in other content management systems.
- Possibility to create own module.

Results from using:

It is possible to edit the whole content and appearance of the website. But editing of the content is more complicated than in WordPress or Plone. On the other hand customizing of appearance is easier in Drupal than in Plone but more complicated than in WordPress. Furthemore, WordPress contains the biggest amount of pre-made templates of appearance, which can be edited by user.

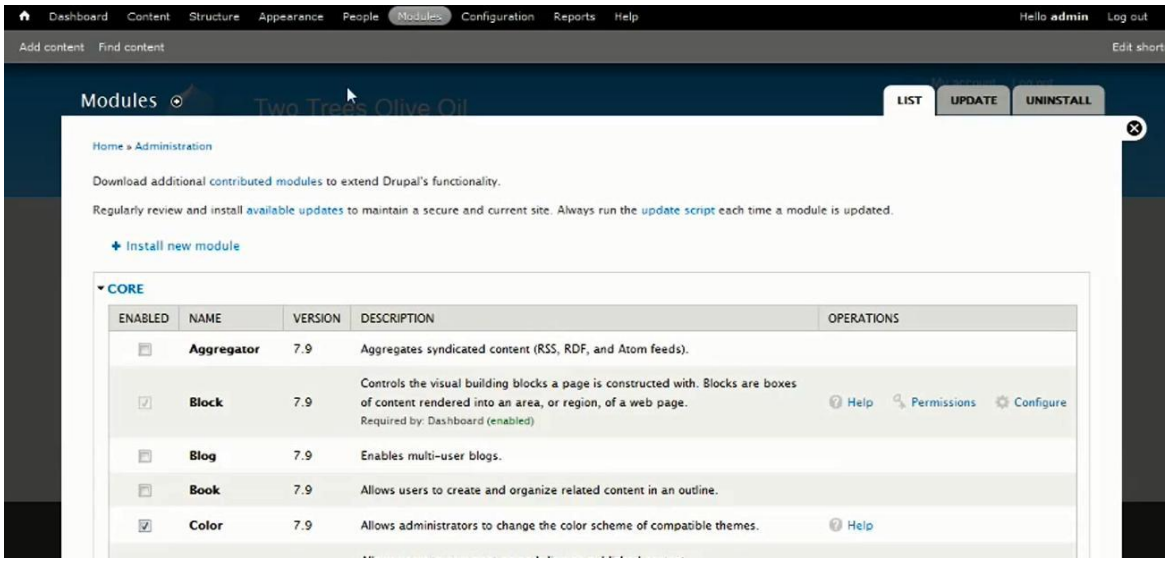


Figure 4.4.4-1: Example of the administrative interface of the website

4.4.5Comparison of all content management systems

The requirement of the members of the research group was that the websites should be easy to edit their content. I add two criterions - number of options and ease of editing the appearance. The ease of editing the appearance is very important when the researchers want to add some widget to some page or to edit the look of the pages. Number of options of the content management system is important when the researchers want to add some additional functionality to some pages. The content management systems were compared according to these three criterions of the researchers and it appeared that WordPress is the most suitable content management system for creating the presentation websites of the Czech neuroinformatics node.

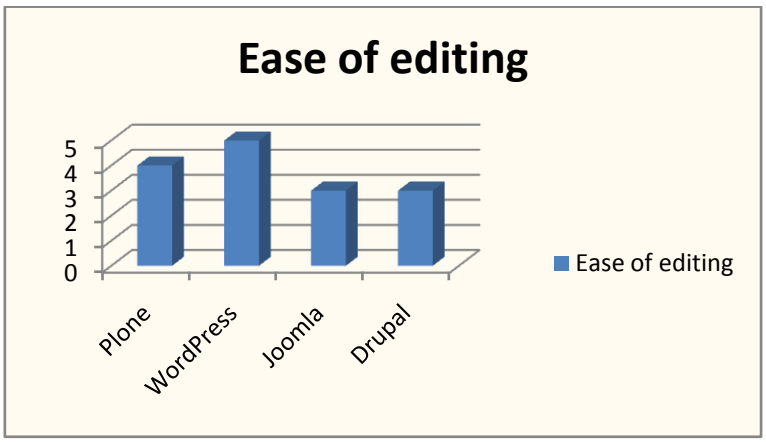


Figure 4.4.5-1: comparison of ease of editing

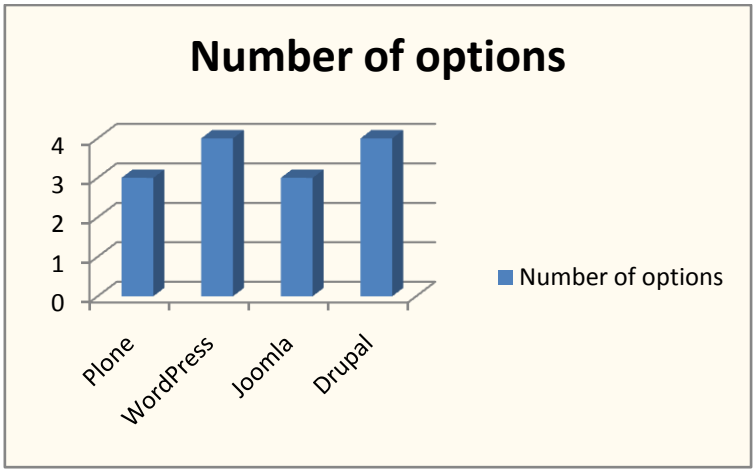


Figure 4.4.5-2: comparison of number of options

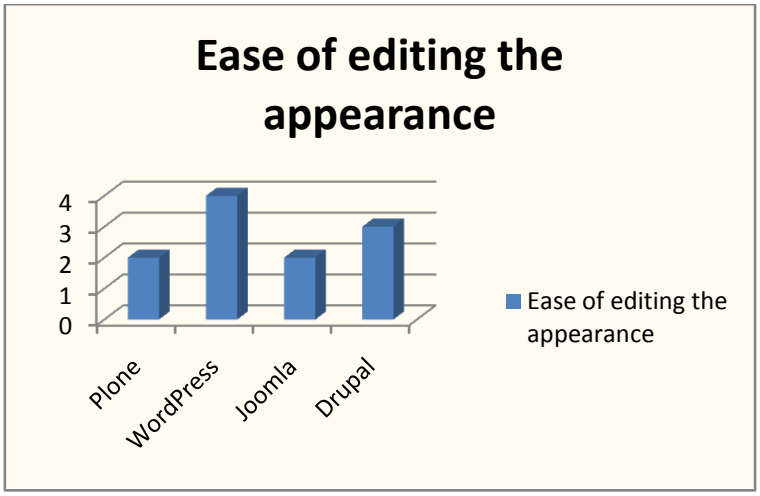


Figure 4.4.5-3: comparison of ease of editing the appearance

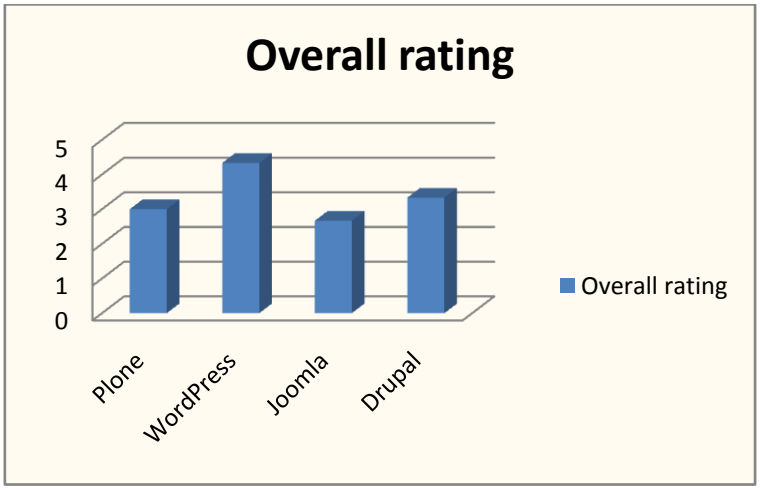


Figure 4.4.5-4: comparison of overall rating

4.5 Creation of the websites

As I mentioned above I chose WordPress for creating the presentation webistes of the Czech neuroinformatics node because it appears to be the most suitable content management system after comparison with other content management systems by using the criterions of members of the research group in the Department of Computer Science and Engineering at the University of West Bohemia.

The members of the research group had some main requirements, which I had to fulfil by using this content management system for the presentation of the Czech neuroinformatics node.

4.5.1 Installation

The installation process of WordPress is very simple.

1. I uploaded the content of downloaded folder WordPress 3.5.1 to server using FTP into the folder */afs/.kiv.zcu.cz/projekt/neuroinfo/*. The host name for connection is *students.kiv.zcu.cz*.
2. I visited the site at http://czech-neuroinf-node.kiv.zcu.cz/ and I was prompted to put the database name (the name of the database where the WordPress will be running), user name (the created MySQL username), password (the associated MySQL password) and database host.
3. I put all the required information mentioned above. All these information was given to me by the administrator Luboš Matějka.
4. Then I was prompted to insert site title, my username, email and password. After filling these text boxes I installed WordPress by pressing the button.
5. Then the login page showed and after log in process I was in the admin interface of the WordPress.

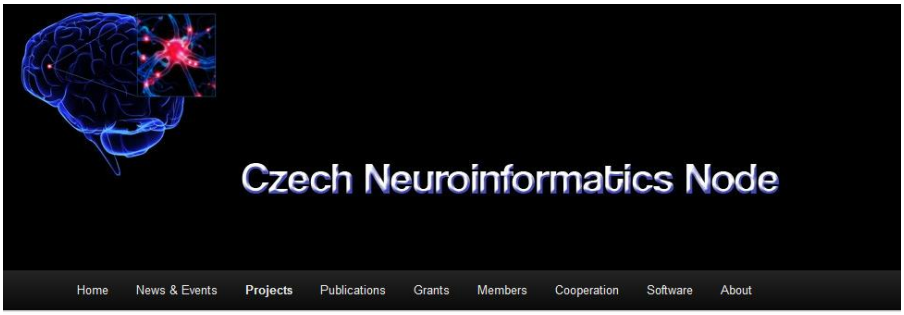
4.5.2 Presentation of the research

This requirement of the members of the research group was to present their research. The accomplishment of this requirement is based on the analysis of the presentation of other research groups, which I made before.

After consultation with the members of the research group I chose theme of appearance - *Twenty Eleven* and I adjusted its appearance to meet the requirements of the research group.

I made a static homepage with description of the Czech neuroinformatcs node. Text for the homepage was taken from the INCF websites of the Czech neuroinformatics node (http://incf.org/about/who-we-are/nodes/czech-republic).

Then I made a page, which presents the projects of the Czech neuroinformatics node. I created a static page under menu item *Projects*. This static page contains names of individual projects, which are links to other pages with information about chosen project (see Figure 4.5.2-1). Under the link of each project there is an annotation of the project, name of the responsible person of the project, names of the collaborators and names of the people, who are in reference/collaboration (see Figure 4.5.2-2). Then there is a photogallery, if it is needed, and a list of researchers, who participate in this project. As a request of the members of the research group, one project contains information about its funding.



Projects

- Development coordination disorder in children – diagnosis, relationship to brain function
- Analysis of EEG in mice
- Hardware and software infrastructure for measuring and processing electrophysiological experiments
- Driver's attention

Figure 4.5.2-1: page with links to individual projects

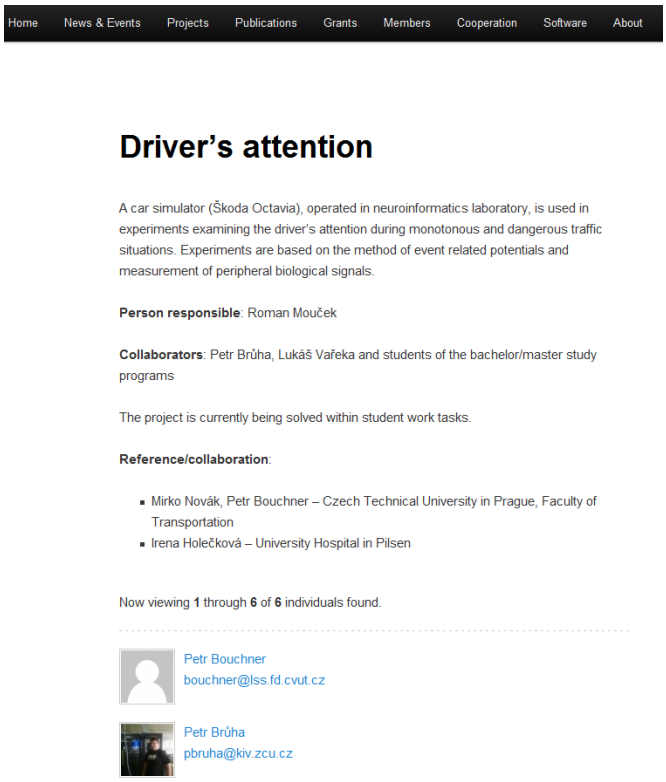


Figure 4.5.2-2: Driver's attention project page

Next step, which I made, was to present the publications of the Czech neuroinformatics node. I analysed reference management systems in KIV/OPSWI and after consultation with the members of the research group in the Department of Computer Science and Engineering we chose the WizFolio as a suitable reference management system. WizFolio allows users to export some folder as a BibTeX file. I installed a plugin called *papercite* to WordPress, which takes the bibtex text file as an input and the output is formatted HTML, which is inserted to the page as a list of publications, which is divided according to the published years (see Figure 4.5.2-3). All the researchers need to do is to upload the bibtex text file to server using FTP into the folder */afs/.kiv.zcu.cz/projekt/neuroinfo/wp-content/papercite-data/bib*. The host name for connection is *students.kiv.zcu.cz*. If the uploaded file is named *Publications.bib*, there is no need to change anything else. Otherwise there is need to change the name of the file in the WordPress admin interface in the page, where the publications are shown (see Figure 4.5.2-4). The researchers do not have the permission to upload files to server yet. But all they need to do is to contact administrator of the server Luboš Matějka and he will give them the permission to upload files. I did not do this because the researchers need to choose, which one of them will be the admin of the presentation websites.

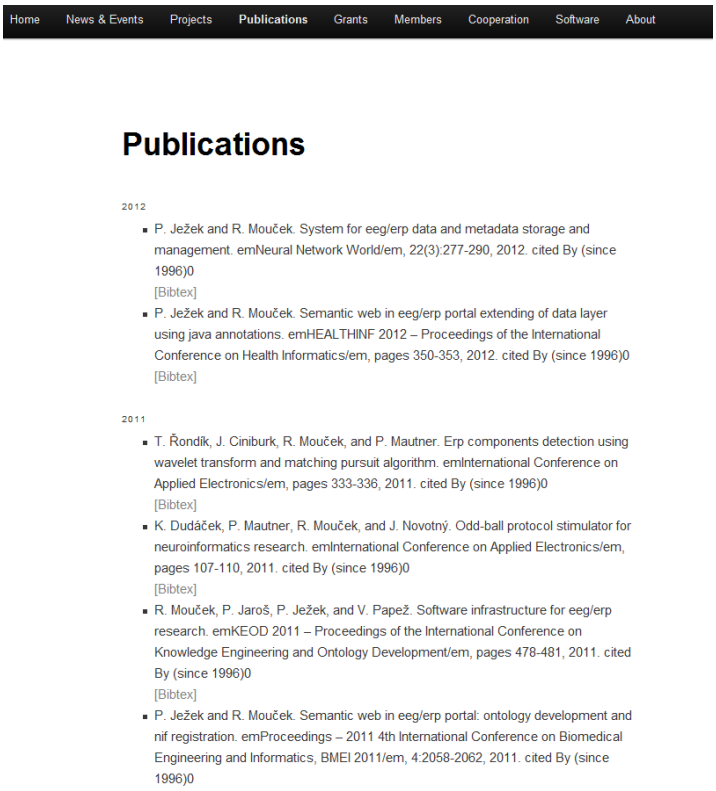


Figure 4.5.2-3: publications divided according to the published year

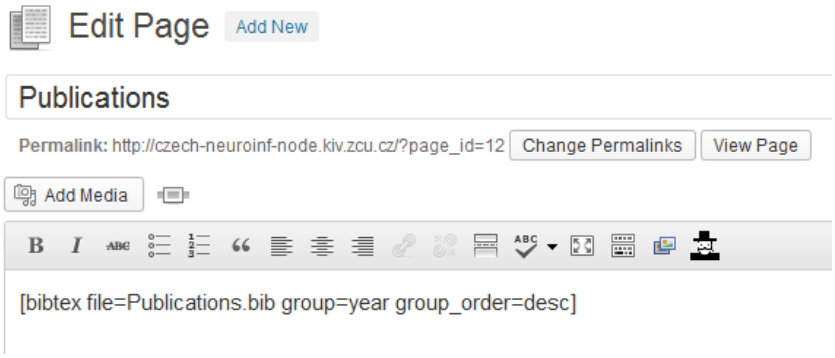


Figure 4.5.2-4: shortcode with the name of the bibtex file

Then I made a page, where the presentation of the grants of the Czech neuroinformatics node is. There is a list of the grants on the page only with their numbers and names as links to The Research and Development and Innovation Information System of the Czech Republic, where the chosen grant is described (see Figure 4.5.2-5).

Figure 4.5.2-5: list of grants

There is also a page, which presents open-source software projects under the menu item *Software* (see Figure 4.5.2-6). There is a name, short description of the software and link to page, where the visitor can download the software.

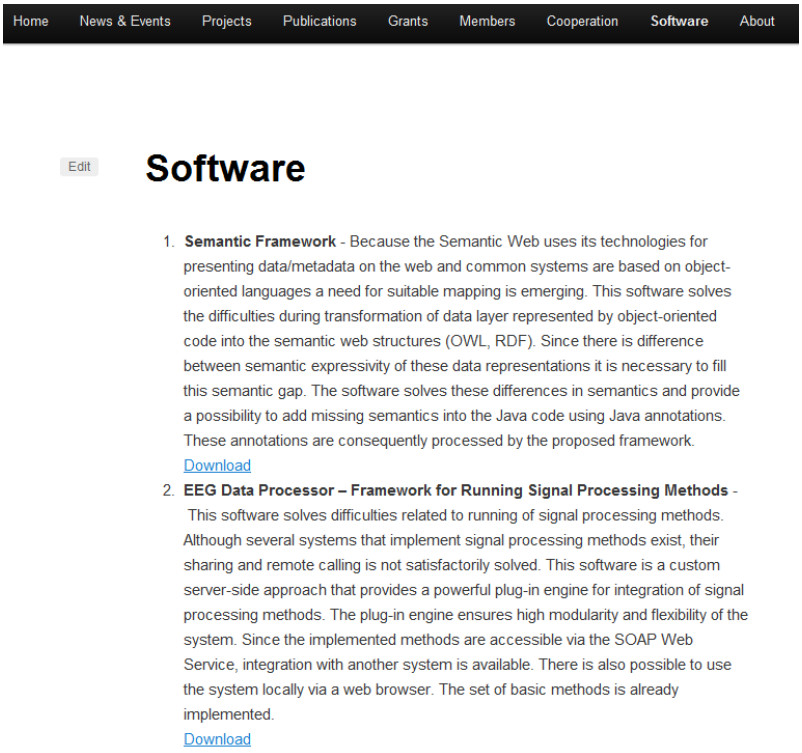


Figure 4.5.2-6: page with description of the software and link to download it

I also solved connection to social networks – twitter and facebook. The news of the Czech neuroinformatics node are in the form of posts, which are inserted to the page under the menu item *News&Events.* The news are automatically sent to these social networks (see Figures 4.5.2-7 and 4.5.2-8). To accomplish this task I had to create an account of the Czech neuroinformatics node on twitter, which is called *czechNeuroinformatic*. The username is *czechNeuroinf* and contact email is *eegzcu@gmail.com*. Then I created a public page on Facebook, which is called *Czech Neuroinformatics Node* and people can visit it on https://www.facebook.com/CzechNeuroinformaticsNode. I also had to analyse existing software tools for sending posts from presentation websites to social networks. The software tool has to collect posts and feeds the account on social networks with them by using RSS feeds. I analysed two free software tools:

- **TwitterFeed** - It allows automatic actualization of social sites from RSS feeds. All it needs is to put URL of the source of news and to put information about how often you want to update your content. It is necessary to be logged in on facebook and twitter and to allow an access of the application.[46]
- **Dlvr.it** - It also allows automatic actualization of social sites from RSS feeds as TwitterFeed.[47]

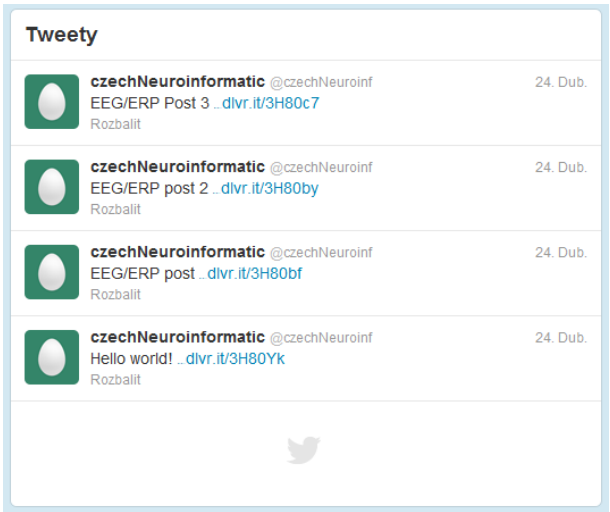


Figure 4.5.2-7: news from presentation websites as tweets on twitter account

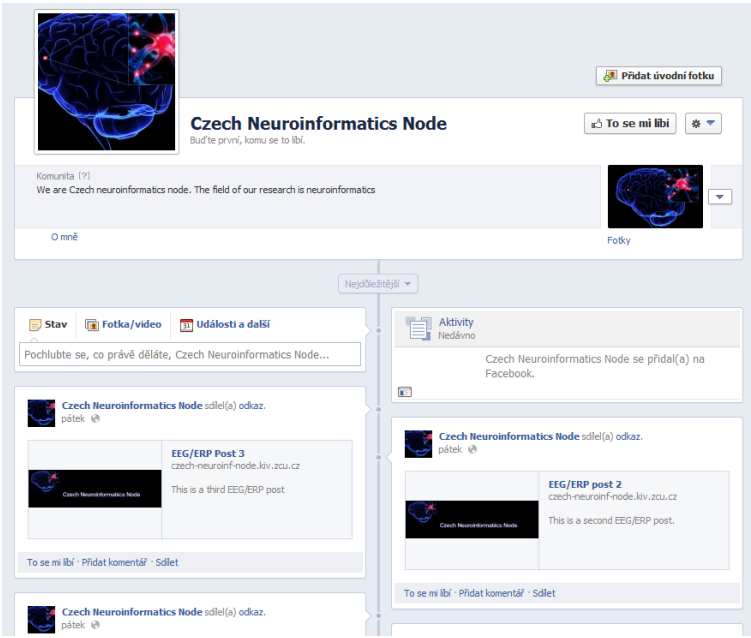


Figure 4.5.2-8: facebook page with news

I chose Dlvr.it because TwitterFeed was not sending posts to social networks for the first time and I read in discussion that TwitterFeed is not working sometimes. On the other hand Dlvr.it had good review and there was no problem during using this software tool and that is why I chose to use Dlvr.it. I only had to put source and destination (see Figure 4.5.2-9). The source is feed url of the page with news in presentation websites of the Czech neuroinformatics node and then I set the feed update period every 30 minutes. The first destination is *czechNeuroinf* twitter account. All what is need to do is to connect to twitter account and to allow Dlvr.it to put posts to this account. The second destination is *Czech Neuroinformatics Node* page on facebook. All what is need to do is to connect to facebook with an account, which has manager access to the created page and to allow Dlvr.it to put posts to the *Czech Neuroinformatics Node* page.

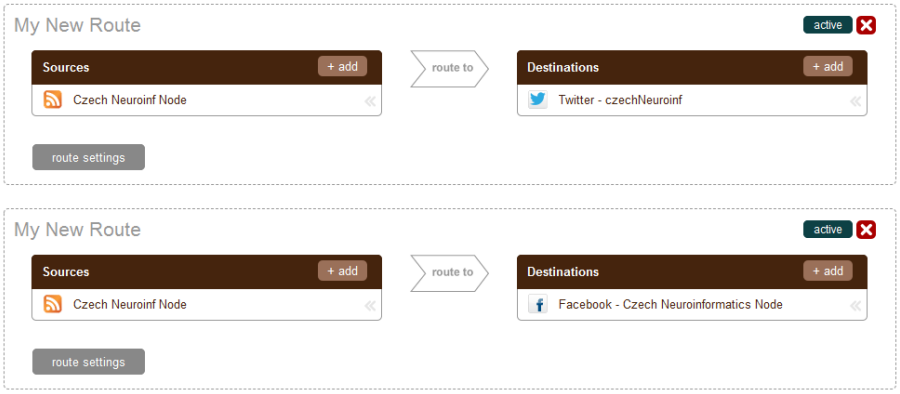


Figure 4.5.2-9: sources and destinations set in Dlvr.it

4.5.3EEG laboratory presentation

This requirement of the members of the research group was to present their EEG laboratory.

I made a static page under menu item *About - EEG laboratory*. I accomplished this requirement by creating a panoramic photo, which I made from 5 different photos, which are overlapping of 20 percent. I composed these photos together to the panoramic photo in free software tool *Microsoft ICE (Image Composite Editor)*. I inserted this panoramic photo to the page as a shortcode(see Figure 4.5.3-1) by using plugin called *WP-PhotoNav*. Then I also inserted a photo gallery to this page under the panoramic photo with photos from the laboratory and with photos of the laboratory equipment (see Figure 4.5.3-2). This photo gallery was inserted as a shortcode (see Figure 4.5.3-1) by using plugin called *NextGEN Gallery*.

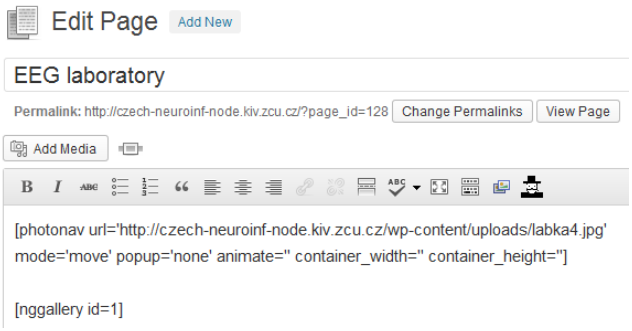


Figure 4.5.3-1: shortcodes of the panoramic photo and the photo gallery

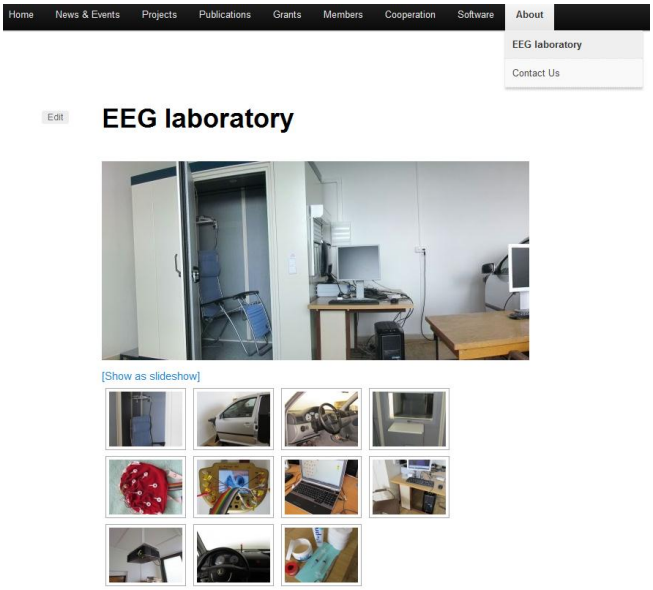


Figure 4.5.3-2: presentation page of the EEG laboratory

4.5.4News & Events

This requirement of the members of the research group was to effectively manage news and events of the Czech neuroinformatics node.

I accomplished this requirement by creating a public google calendar in the account *eegzcu@gmail.com*. The calendar is called *Czech Neuroinformatics Node*. The calendar is shown on the homepage using plugin called *Google Calendar Events*. All the plugin needs is the URL of the public google calendar. The upcoming events from the google calendar are shown on the homepage as two widgets - the first one is the small calendar with highlightened days with events, the second one shows five upcoming events in text format (see Figure 4.5.4-1). Both widgets are placed in the sidebar on the homepage and in the sidebar on the *News&Events* page.

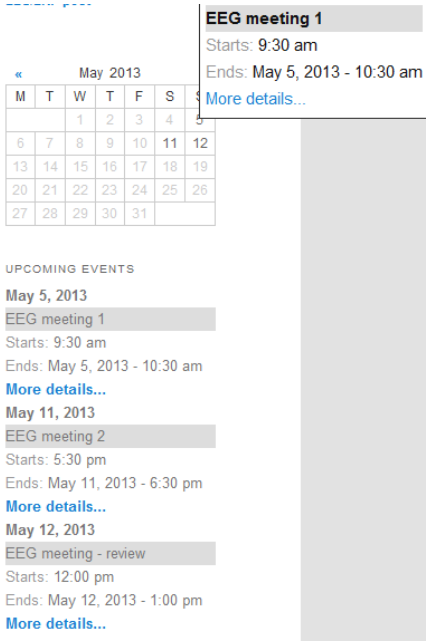


Figure 4.5.4-1: events shown in both sidebar widgets - calendar and text format

I also accomplished the requirement of the news management. The news of the Czech neuroinformatics node are inserted to the page as posts. The posts with news are shown on the homepage as a widget in the sidebar by using plugin called *Latest News Widget*. The news are also shown as the main content of the *News&Events* page under the menu item *News&Events* (see Figure 4.5.4-2). The created news are also sent to the social networks as I mentioned above in the section 4.5.2.

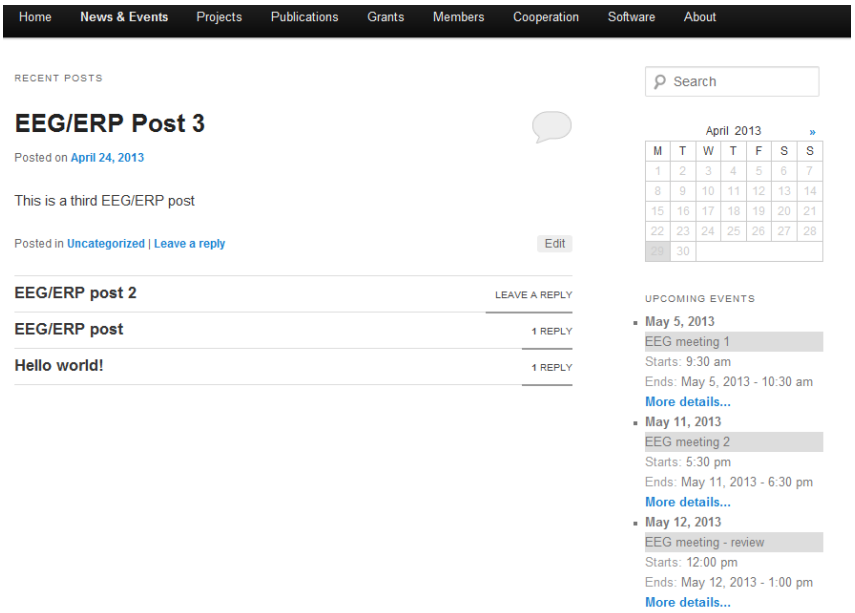


Figure 4.5.4-2: page with news as the main content and with upcoming events in two sidebar widgets

The news are links to the post with the title of the news, its text and comments (see Figure 4.5.4-3). The logged in user can also comment the news. I set the possiblity to comment posts only to logged in users to avoid of spam.

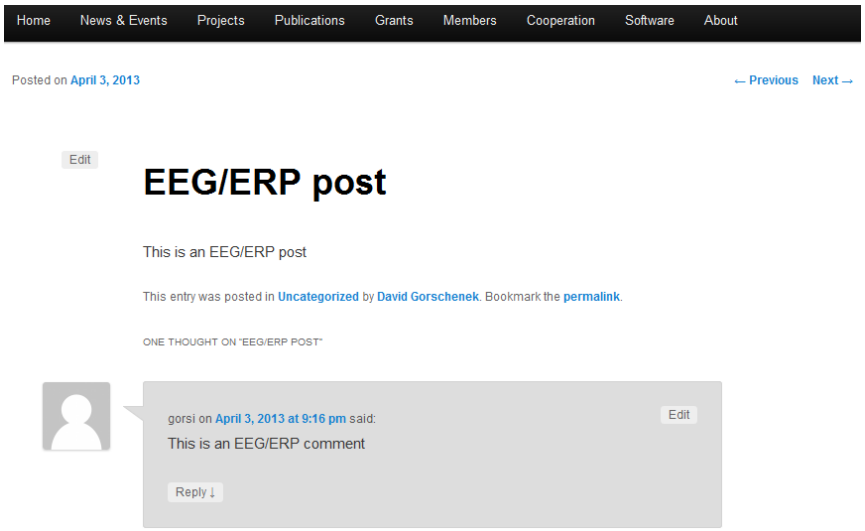


Figure 4.5.4-3: name of the selected post with its text and comments

4.5.5Presentation of the people

This requirement of the members of the research group was to present all people involved in the research of the Czech neuroinformatics node. The requirement was to divide people into two categories - members of the node and cooperators. People as members or cooperators are then divided according to the institution, of which they are members.

I accomplished this requirement by creating two menu items - *Members* and *Cooperation*. Both menu items have subitems *Individuals* and *Institutions*. In *Individuals* there are all members or all cooperators. In *Institutions* there is a static page with the names of the institutions, which are links to the pages, where the list of people is, who are members in the particular institution (see Figure 4.5.5-1).

Figure 4.5.5-1: list of people, who are members in Institute of Computer Science, Academy of Sciences of the Czech Republic

In the list there is shown photo of the person, name, email address and role of the person (role is optional field - can be empty). Name of the person is a link to the author page of the selected person. This page contains more information about selected person (see Figure 4.5.5-2).

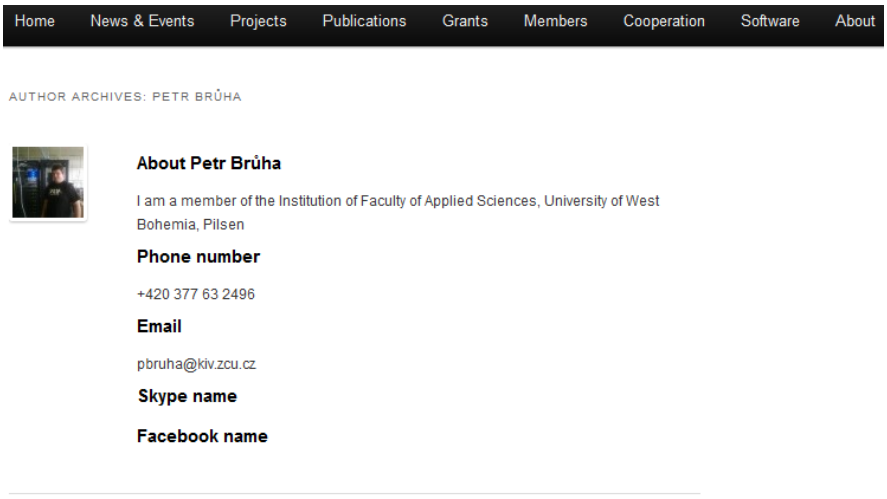


Figure 4.5.5-2: author page of the selected person

There is some information about the person, his/her phone number, his/her email address, his/her skype name and facebook name. This fields excluding email address are optional and they can be empty. I added these fields to all members by using plugin *Extra User Details*. These extra user details can be filled in the WordPress admin interface under *Users* menu item. I also had to change the *author.php* template of the theme of appearance in WordPress admin interface because the file implicitly shows posts on the author page, which are created by the selected person (see Figures 23, 24 in Attachment D - changes in Author.php template).

4.5.6Connection to public

This requirement of the members of the research group was to be in touch with public.

I accomplished this requirement by creating page with simple contact form under the menu item *About* - *Contact us* by using plugin called *Contact Form 7* (see Figure 4.5.6-1). The contact form is inserted to the page as a shortcode (see Figure 4.5.6-2) after its creation by using this plugin. There is also set the email address to which the email is sent. I set *eegzcu@gmail.com* as a contact email address as a request of the members of the research group.

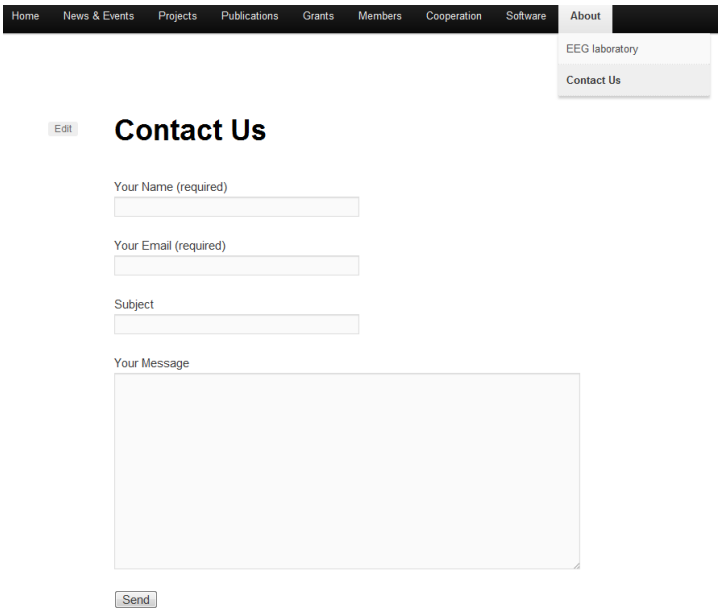


Figure 4.5.6-1: contact form on the page Contact us

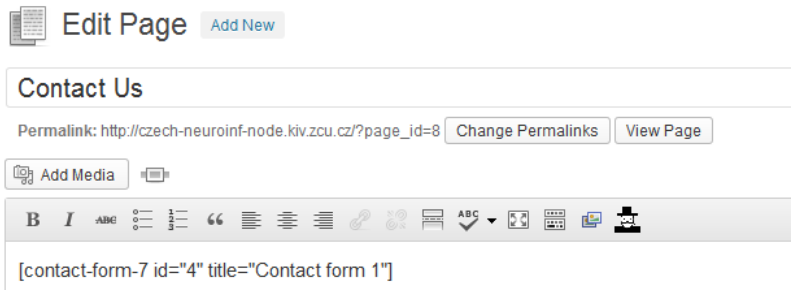


Figure 4.5.6-2: inserted shortcode on the page Contact us

4.5.7 Administration

4.5.7.1 Basic information

The new post, which represents news, can be created under the menu item *Posts*. The new page can be created under the menu item *Pages*. New created page can be added to the menu under the menu item *Appearance* - *Menus*. You can find more information at http://codex.wordpress.org/Working_with_WordPress.

The members of the research group in the Department of Computer Science and Engineering at the University of West Bohemia are admins in the WordPress and other users from other institutions are just subscribers. It means that they can comment news in the form of posts after logging in and they can update their profile but they can not do anything else in the WordPress. This

was the requirement of the members of the research group in the Department of Computer Science and Engineering at the University of West Bohemia.

The members of the research group in the Department of Computer Science and Engineering at the University of West Bohemia can install new plugin if they need it. All they need to do is to upload the folder with plugin to server using FTP into the folder */afs/.kiv.zcu.cz/projekt/neuroinfo/wp-content/plugins*. The connection to server is described above in section 4.5.2.

The users can log in on the page http://czech-neuroinf-node.kiv.zcu.cz/wp-login.php.

The main requirement of the members of the research group was to easily administrate the presentation pages and to easily edit their content.

I accomplished the requirement of easy administration by using two plugins - *Members List* and *NextGEN Gallery*.

4.5.7.2 Members List

I created members lists for each project, each institution and for members individuals and cooperators individuals. Then I selected proper checkboxes of members lists, in which the user should be shown under the *Users* menu item in the WordPress admin interface (see Figure 4.5.7-1).

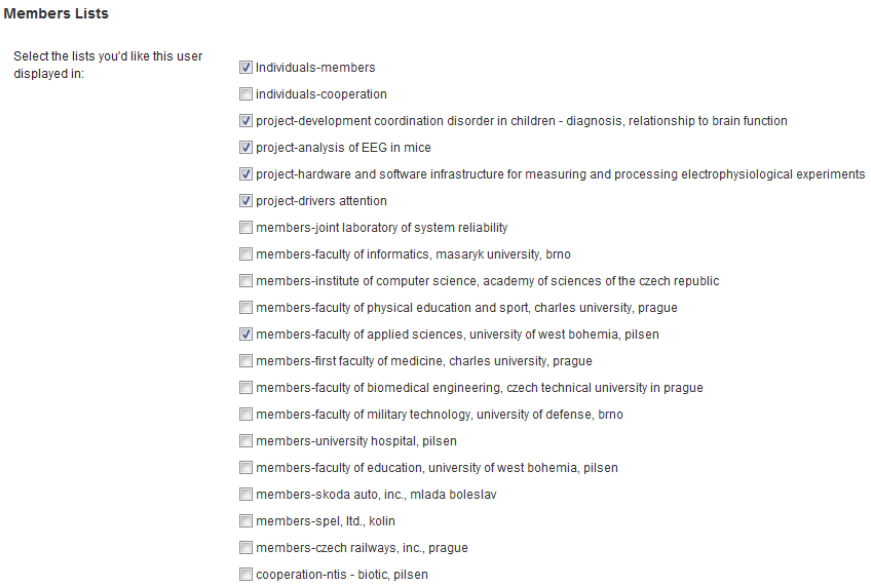


Figure 4.5.7-1: selected members lists of Petr Brůha

It is very easy to edit in the future. If another project starts, all the admin needs to do is to create new members list with the proper name under the menu item *Members List* and select checkboxes with this members list in users, who are members of this project. Then the admin has to put shortcode of the members list on the page, where the admin wants to show the members of the project.

4.5.7.3 NextGEN Gallery

I created photo gallery only for the EEG laboratory but it is very easy to administrate photo galleries using this plugin. It is possible to create new gallery under the menu item *Gallery* and upload some photos to this gallery and then insert shortcode to the page and the gallery will show on this page. It is also possible to upload new photos to existing gallery (see Figure 4.5.7-2) or to delete some photos from existing gallery and these changes will automatically appear on the page without changes of the page admin interface.

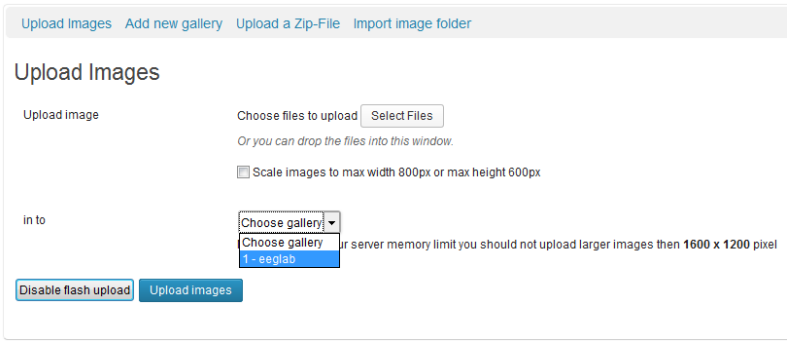


Figure 4.5.7-2: uploading photos to existing eeglab gallery

4.6 Conclusion

I accomplished all requirements of the research group by using suitable content management system for the presentation of the Czech neuroinformatics node. The main requirement was the ease of editing the content of the presentation websites. I chose WordPress because of the big amount of useful plugins, which make the administration of the content much easier. The main requirements for chosing the content management were compared in the section 4.4.5.

The work with WordPress is intuitive and I showed how to administrate the content of the presentation websites in WordPress to the members of the research group.

You can find the presentation websites at http://czech-neuroinf-node.kiv.zcu.cz/.

5 Conclusion

The goal of my diploma thesis was to analyse current software tools for project management, to analyse current situation of presentation of the EEG/ERP research group in the Department of Computer Science and Engineering at the University of West Bohemia and of the Czech neuroinformatics node, to analyse how other research groups with similar field of research present their research, and to analyse content management systems for creating presentation websites.

The analysis of the software tools for project management and of the content management systems took me a lot of time because of practical using and installing, if it was needed, all the software tools mentioned in the thesis.

I accomplished the goal of analysis of presentation websites of other research groups by describing the structures of their presentation websites. I tried to point out weakness, strenghts and differences in the intoduced information under menu items in the presentation websites.

I chose the IBM Connections 4.0 for the project management of the EEG/ERP research group in the Department of Computer Science and Engineering at the University of West Bohemia. This software tool accomplished all requirements of the research group and it is running in the Department of Computer Science and Engineering so there is no need to be worried about cancellation of the project. I created a private community of the EEG/ERP research group with its members, I uploaded some files and organize them to folders, I solved the EEG laboratory management by connecting the google calendar with reservations and the community and I solved the work management of the researchers in IBM Connections 4.0, so I fulfil all requirements of the research group by using this software tool and I showed researchers how to work with this software tool.

I chose the WordPress 3.5.1 for the presentation of the Czech neuroinformatics node. This content management system accomplished the requirements of the members of the research group in the Department of Computer Science and Engineering at the University of West Bohemia. I created presentation websites of the Czech neuroinformatics node in this system with all required information. I had to solve how to present the research of the Czech neuroinformatics node. I divided the presentation of the research into presentation of the Czech neuroinformatics node in general, presentation of the projects, presentation of publications, presentation of grants and presentation of software. Then I solved how to organize news and events of the Czech neuroinformatics node, how

to present the EEG laboratory in the Department of Computer Science and Engineering at the University of West Bohemia, how to present members and collaborators of the Czech neuroinformatics node and how to allow public to contact the members of the Czech neuroinformatics node. I also solved connection of the news from presentation websites to social networks (facebook page, twitter account). The news are automatically sent to these social networks using free software tool Dlvr.it. I uploaded all required information to the pages according to given information from the researchers. I fulfil all requirements of the research group by using this content management system and I showed researchers how to administrate websites in this content management system.

The members of the research group in the Department of Computer Science and Engineering at the University of West Bohemia can already manage their projects in the IBM Connections 4.0 in their community. And they can already administrate their presentation websites in WordPress, which are running in the students.kiv.zcu.cz server in the Department of Computer Science and Engineering at the University of West Bohemia.

List of abbreviation

INCF - International Neuroinformatics Coordinating Facility

EEG - ElectroEncephaloGram, graph, which represents the brain activity

ERP - Event-Related Potentials

HTML - HyperText Markup Language

CNNN - Czech National Node for Neuroinformatic

LICS - Laboratory of Intelligent Communication Systems

FMRIB - Functional Magnetic Resonance Imaging of the Brain

MIT - Massachusetts Institute of Technology

HMS - Harvard Medical School (HMS)

CBMI - Center for Biomedical Informatics

CMS - Content Management System

FTP - File Transfer Protocol

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Attachment A - examples of register forms

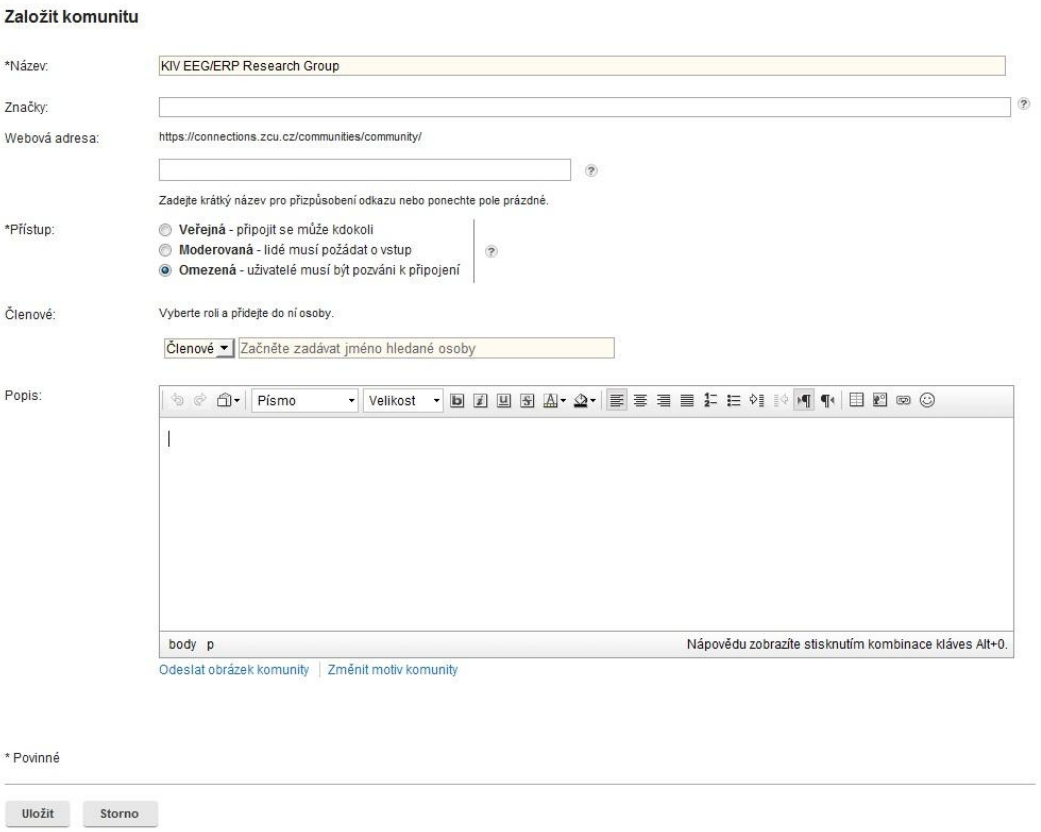

Figure 1: Process of registering new community in IBM Connections 4.0

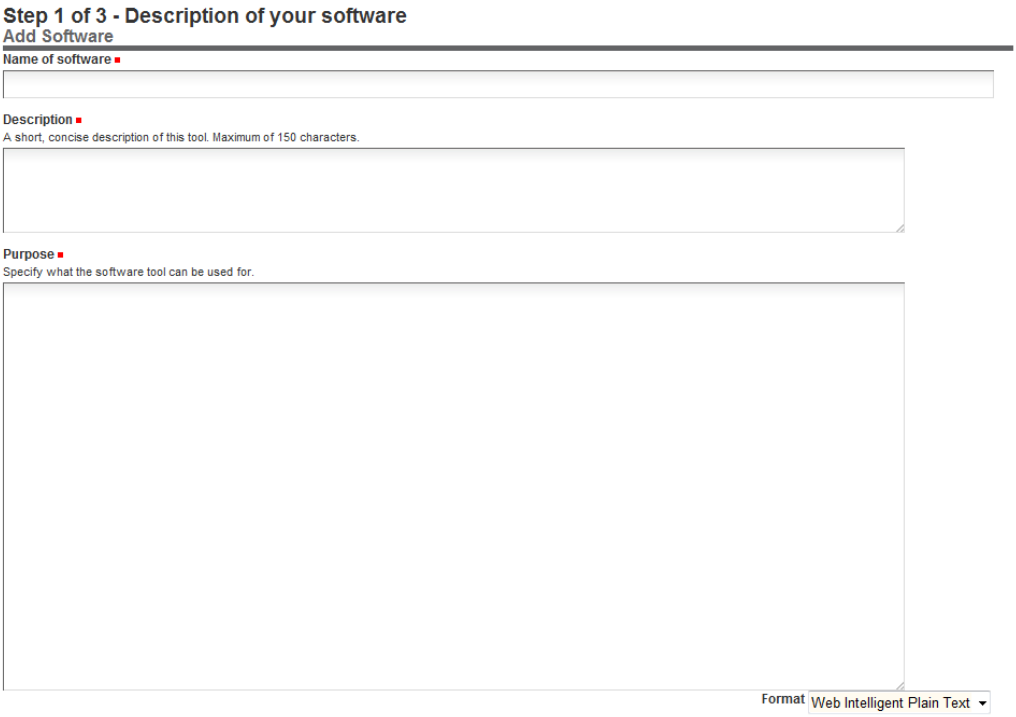

Figure 1: Process of registering new software on INCF (1/2)

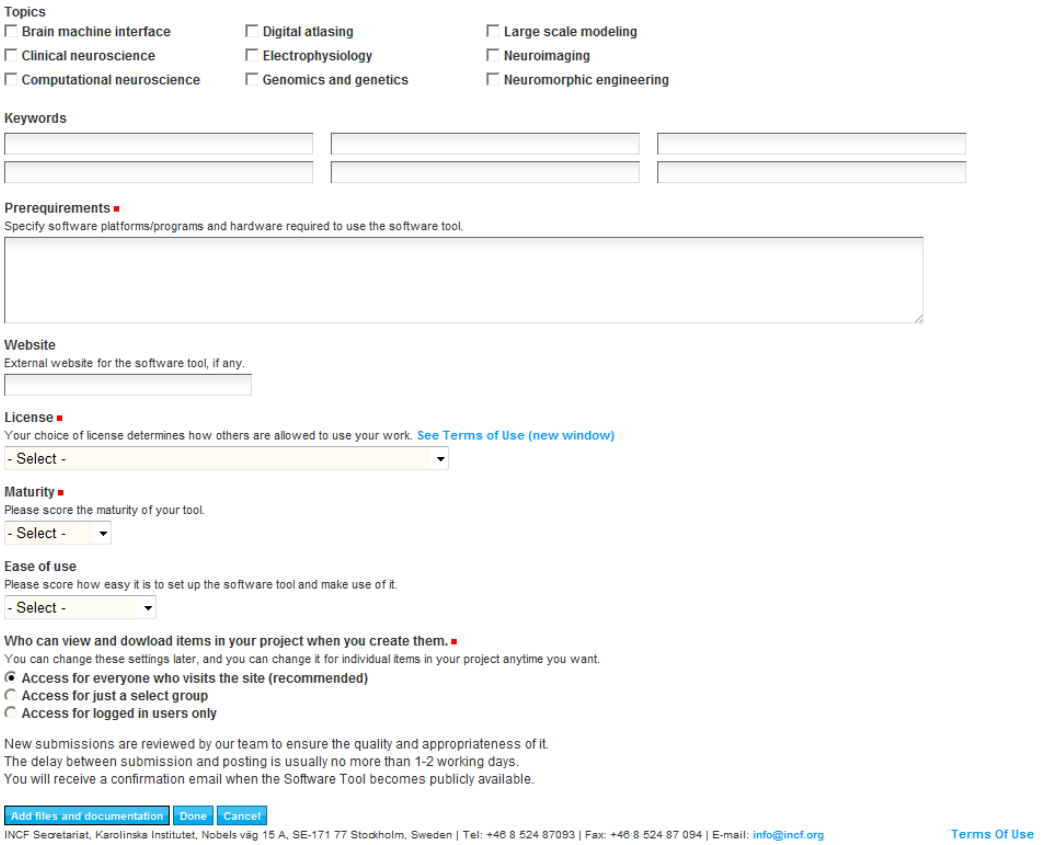

Figure 2: Process of registering new software on INCF (2/2)

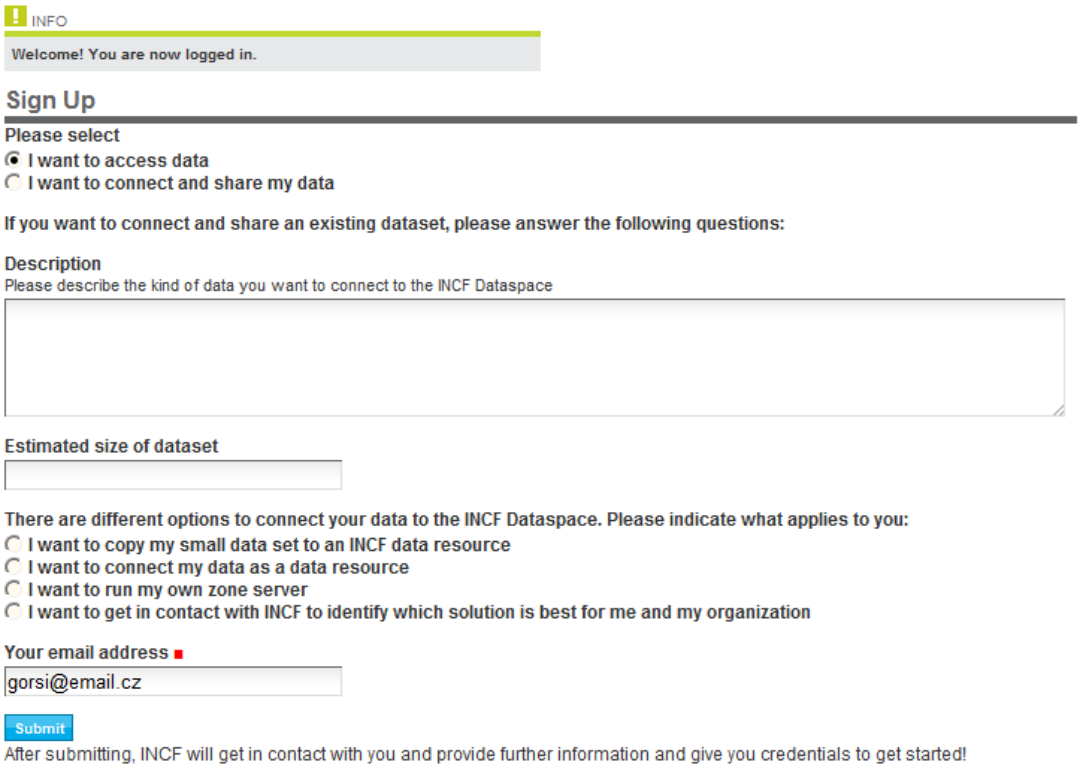

Figure 3: Process of registering on INCF Dataspace

Attachment B - presentation websites of research groups

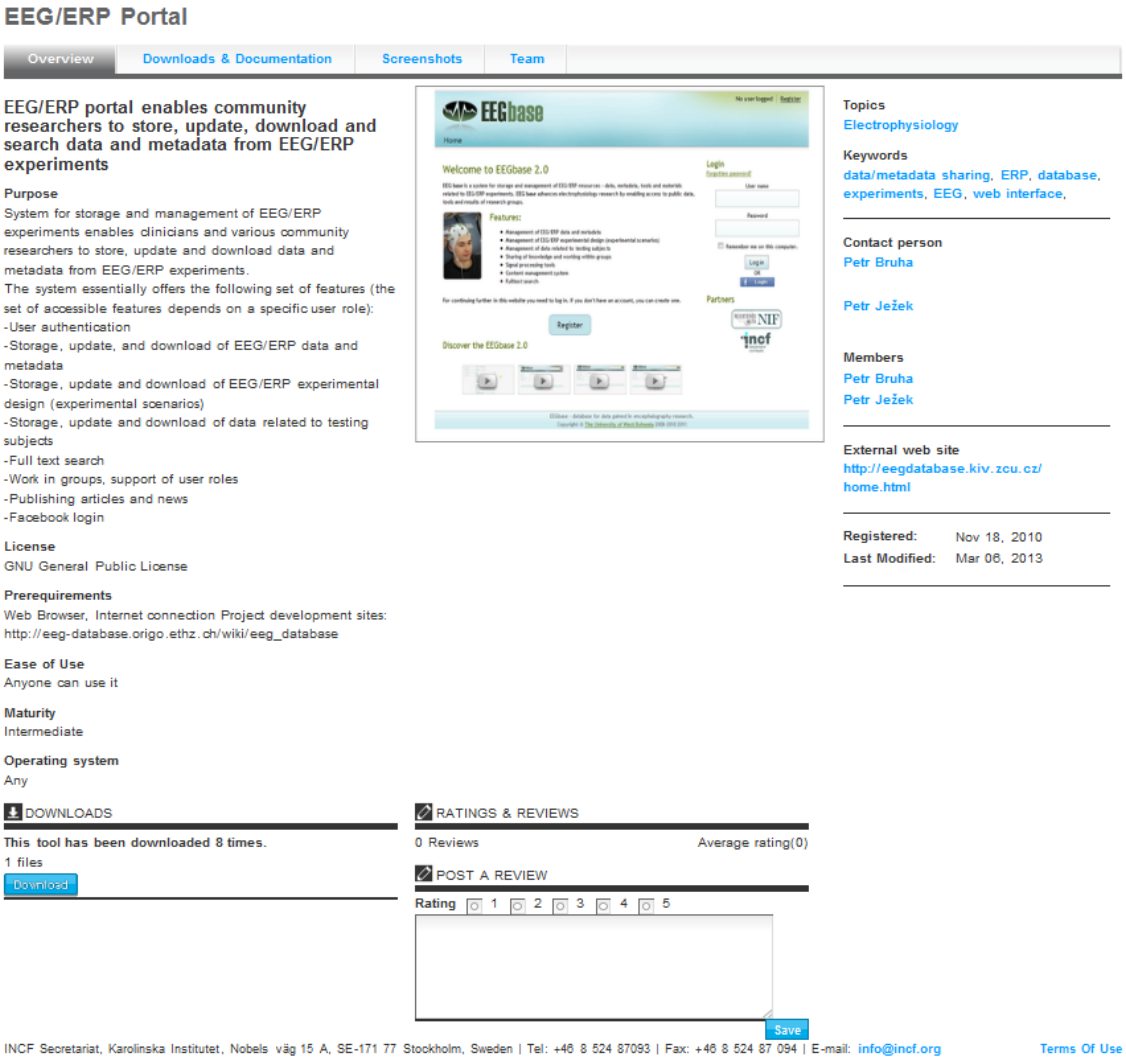

Figure 5: EEG/ERP Portal's website on INCF

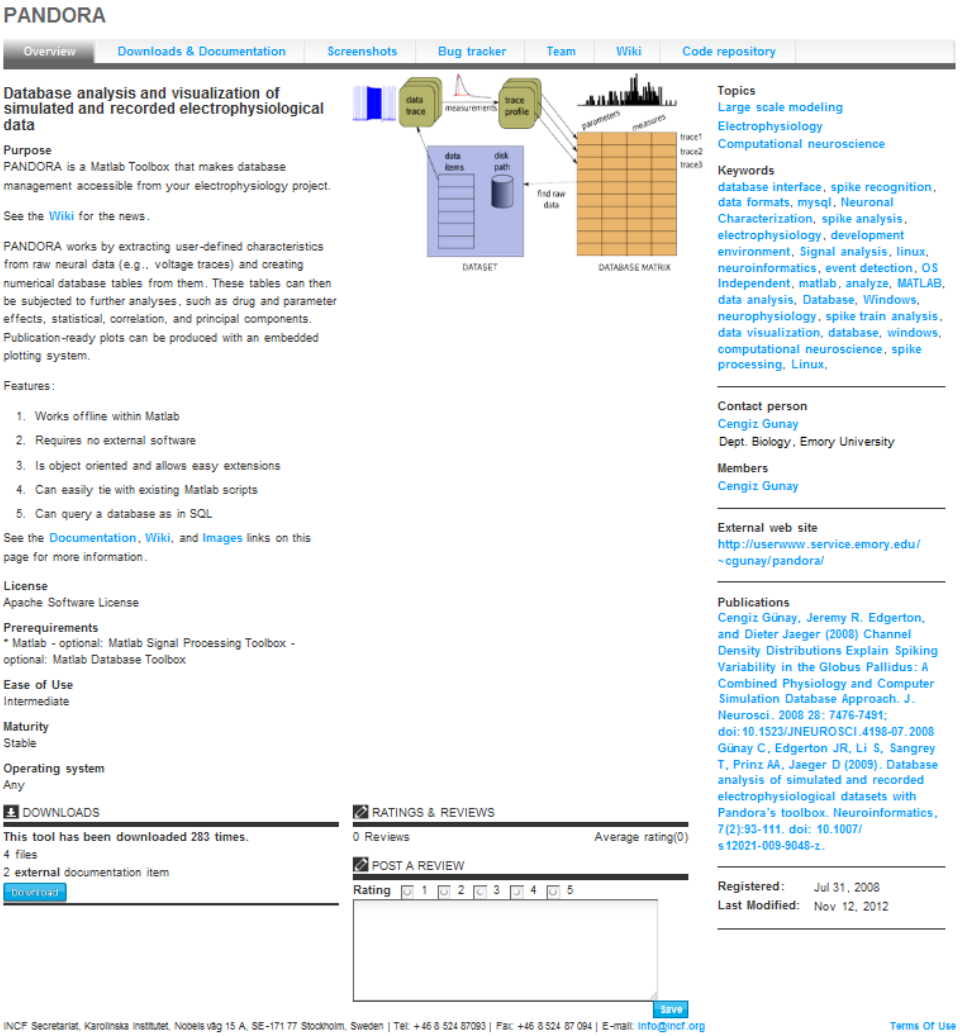

Figure 6: Pandora's website on INCF

Figure 7: Presentation websites of The Dutch node

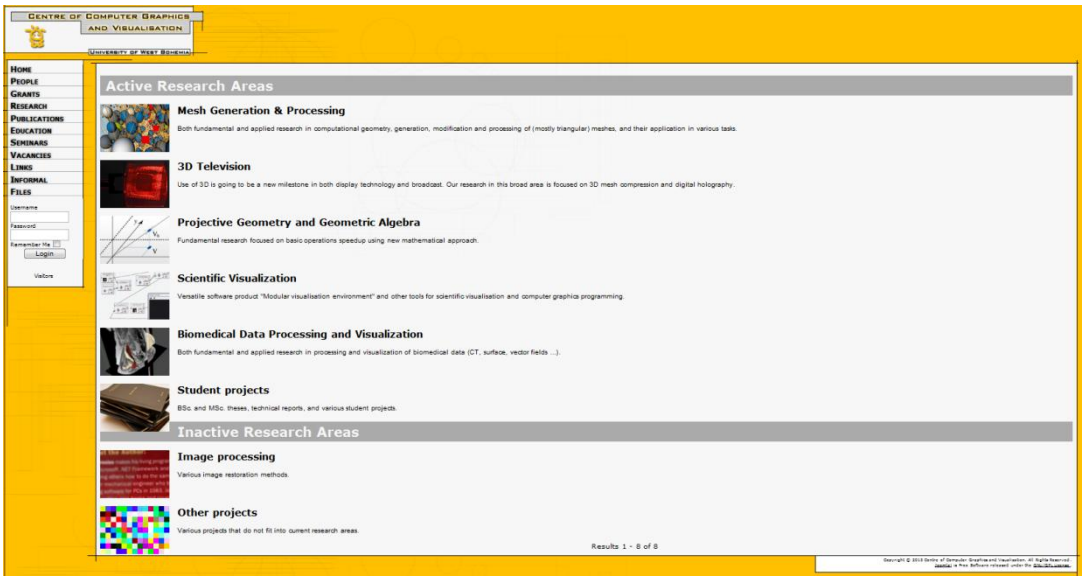

Figure 8: Presentation websites of Centre of Computer Graphics and Visualization

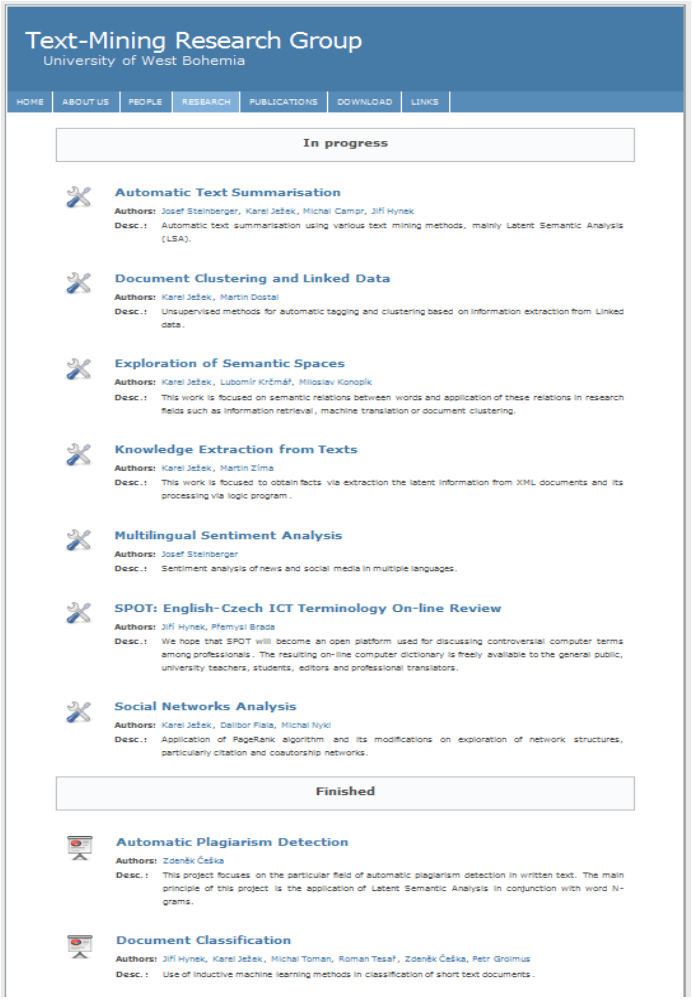

Figure 9: Presentation websites of Text-Mining Research Group

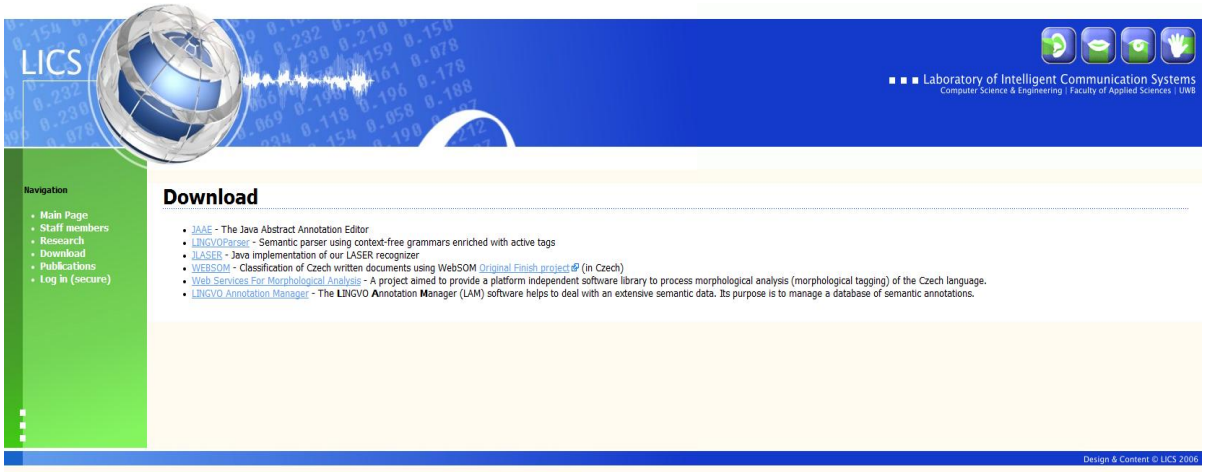

Figure 10: Presentation websites of Laboratory of Intelligent Communication Systems

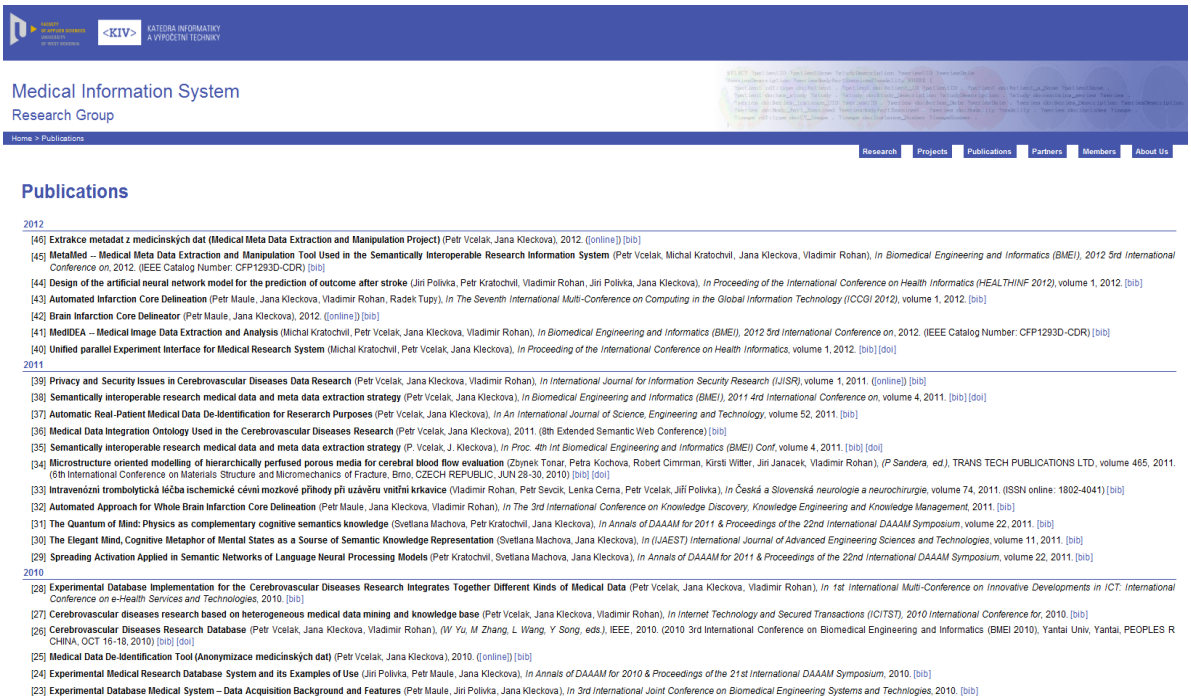

Figure 11: Presentation websites of Medical Information System

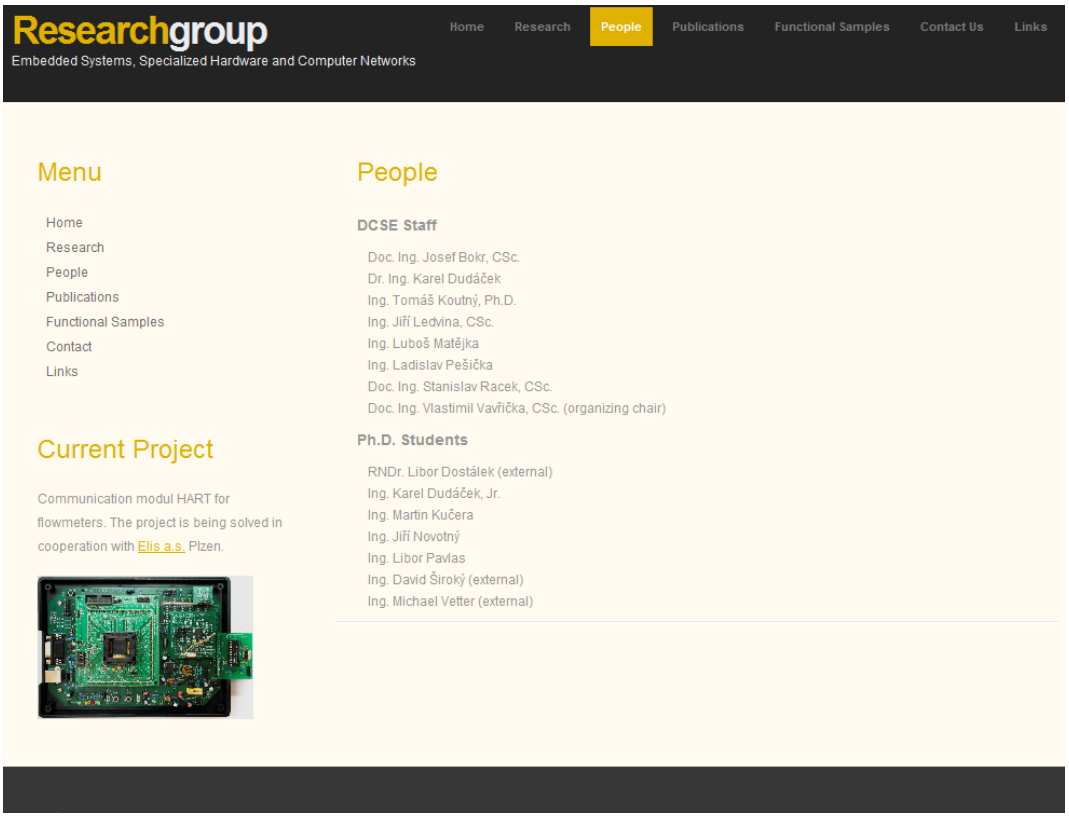

Figure 12: Presentation websites of Embedded Systems, Specialized Hardware and Computer Networks

Figure 13: Presentation websites of Distributed Systems, Simulations, Software Engineering

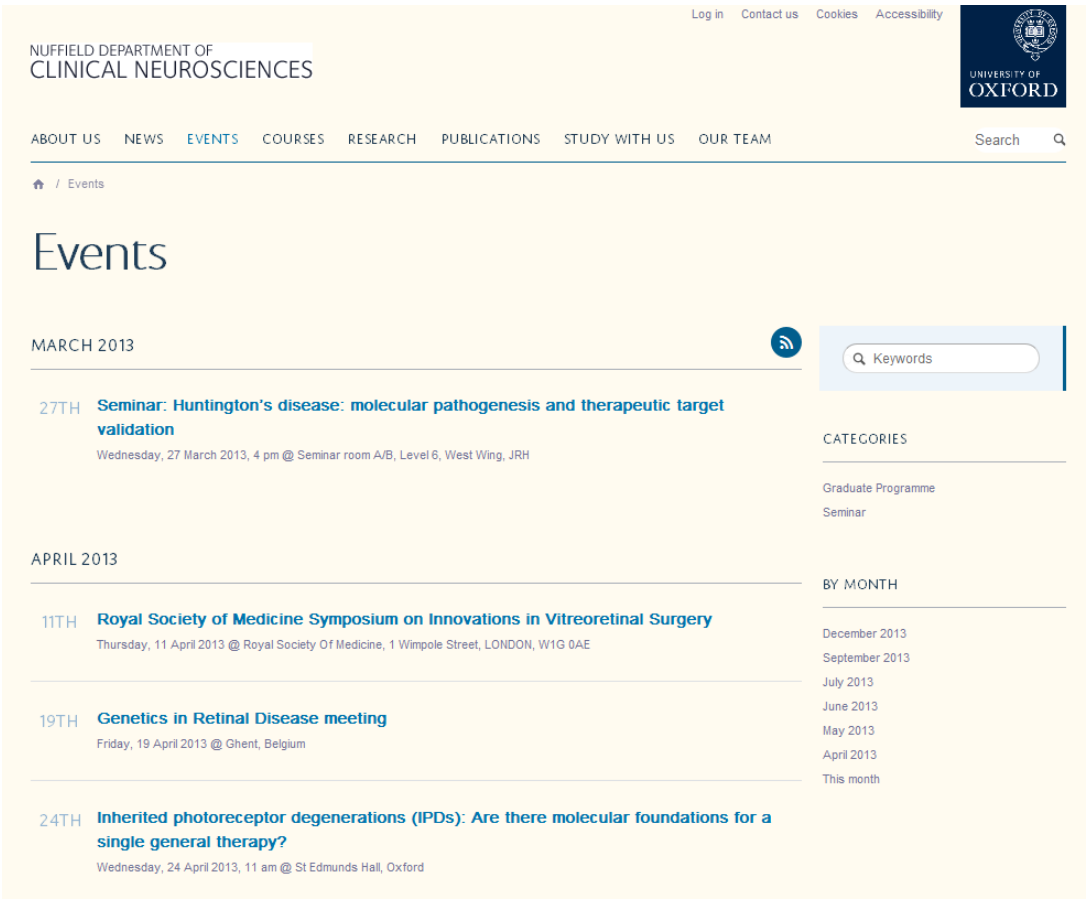

Figure 14: Presentation websites of the Nuffield Department of Clinical Neurosciences at the Oxford University

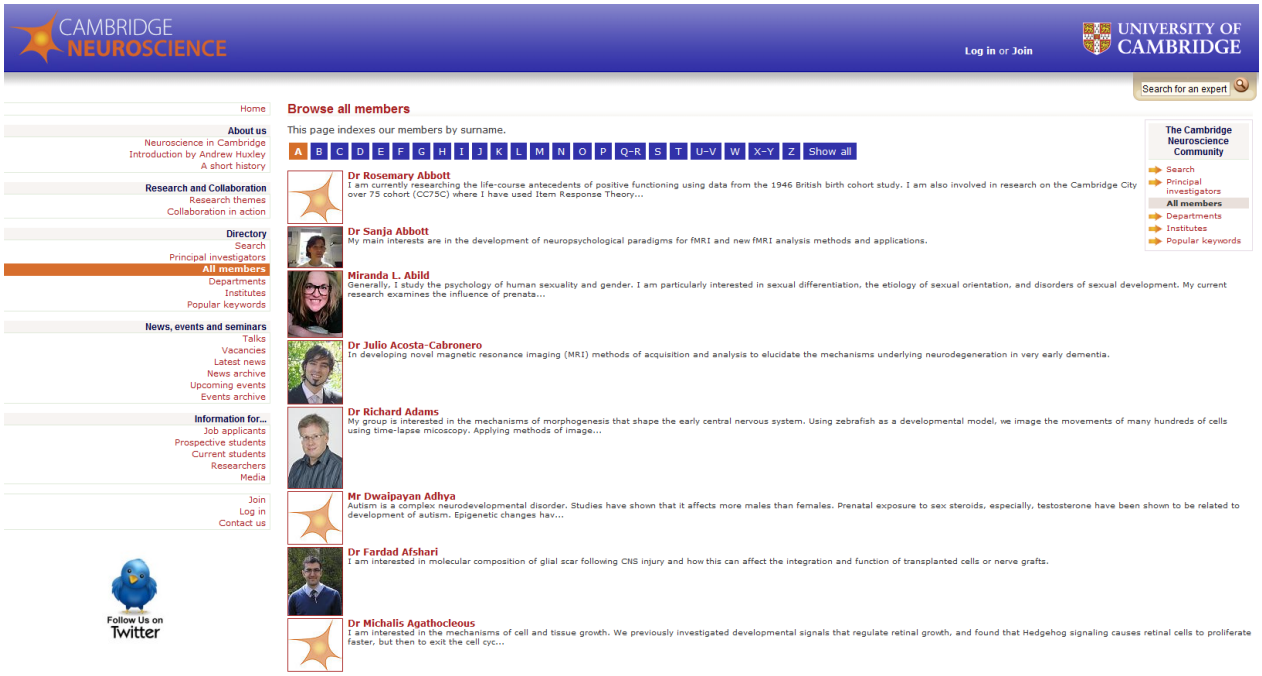

Figure 15: Presentation websites of the Neuroscience at the University of Cambridge

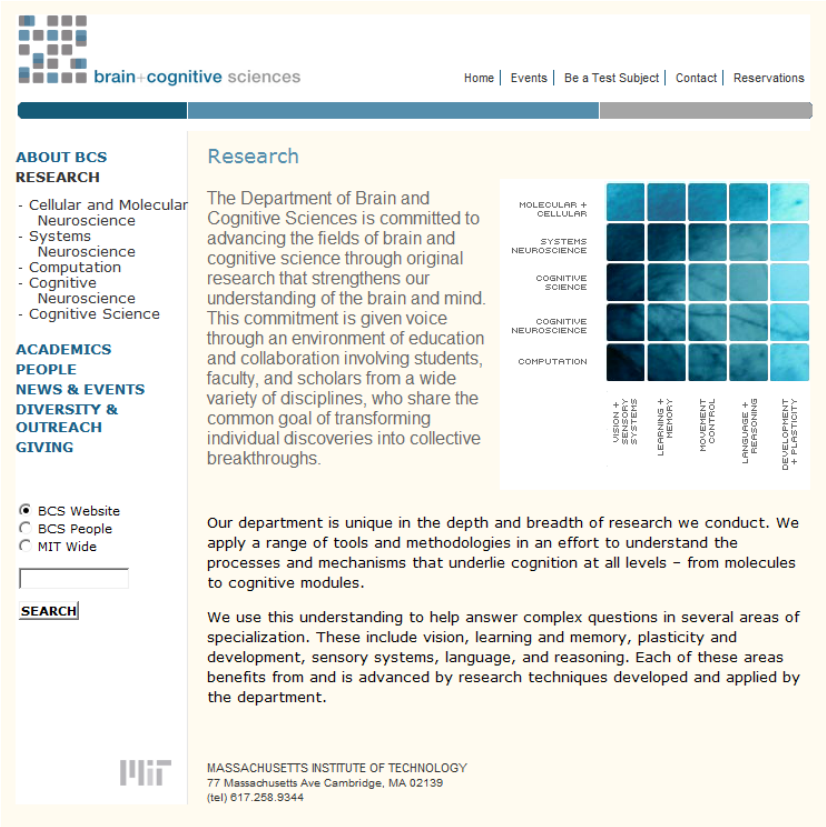

Figure 16: Presentation websites of the Department of Brain and Cognitive Sciences at MIT

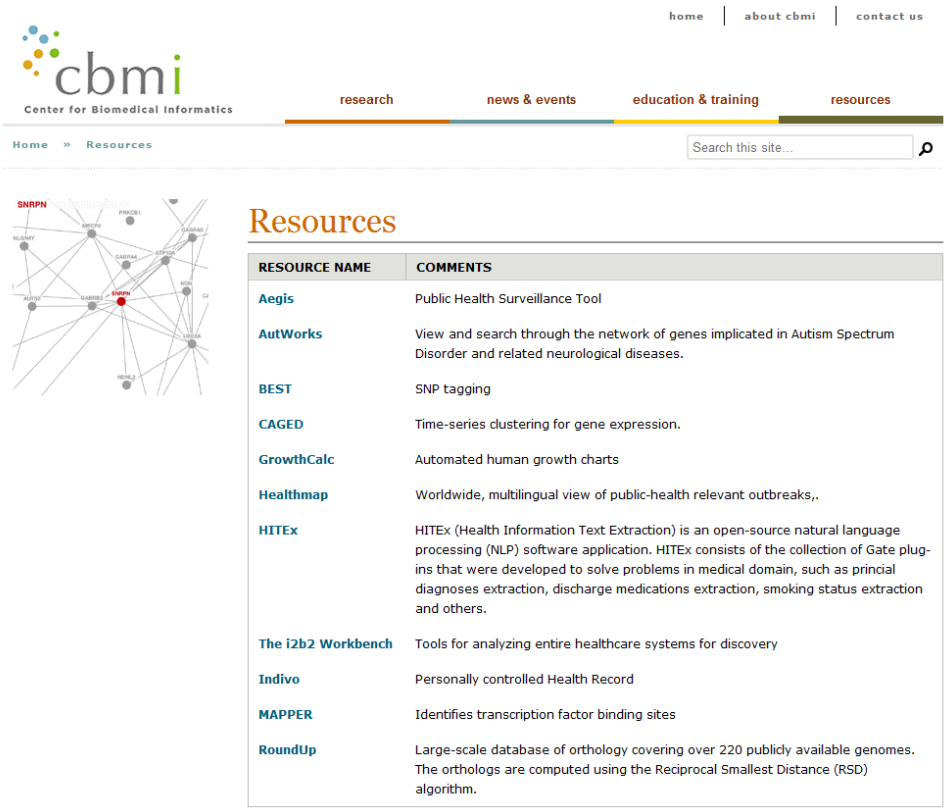

Figure 17: Presentation websites of the Center for Biomedical Informatics at Harvard University

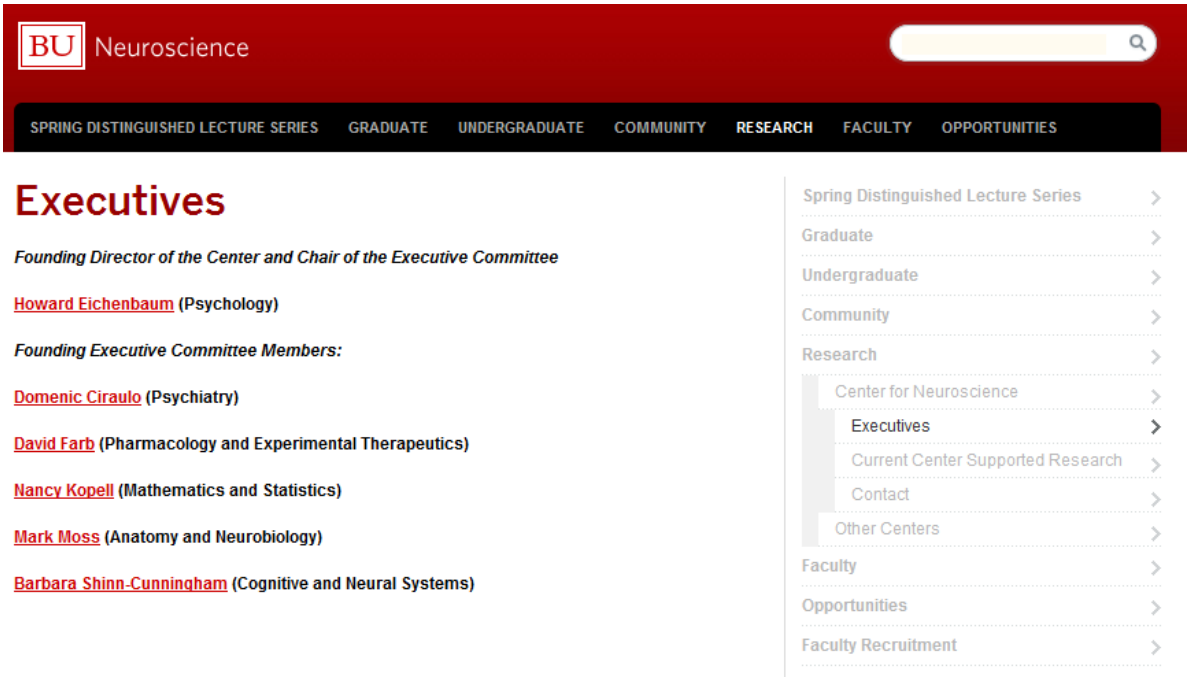

Figure 18: Presentation websites of the Center for Neuroscience at Boston University

Attachment C - CMS's sites

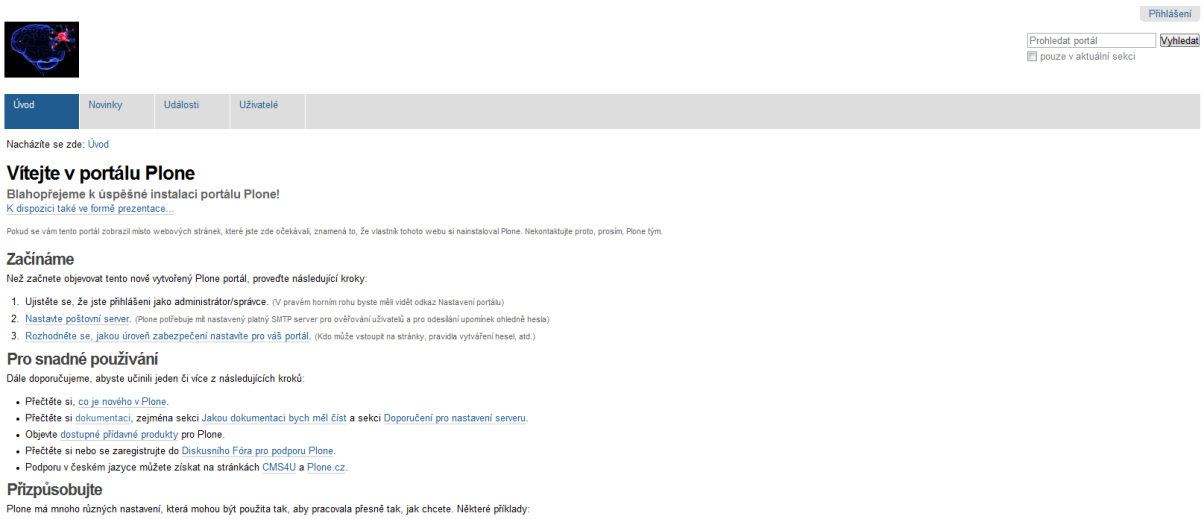

Figure 19: example of the Plone website

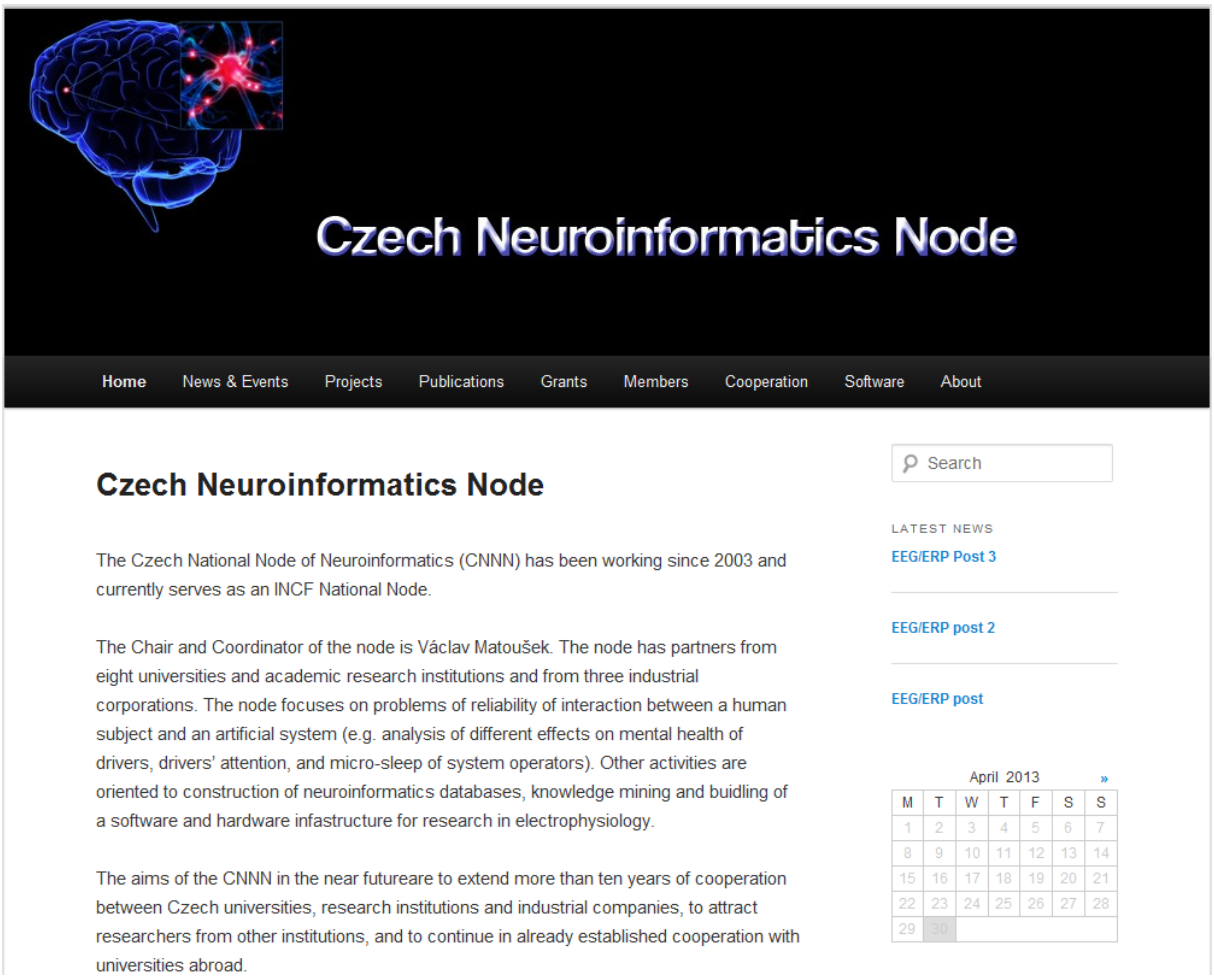

Figure 20: Example of the WordPress website

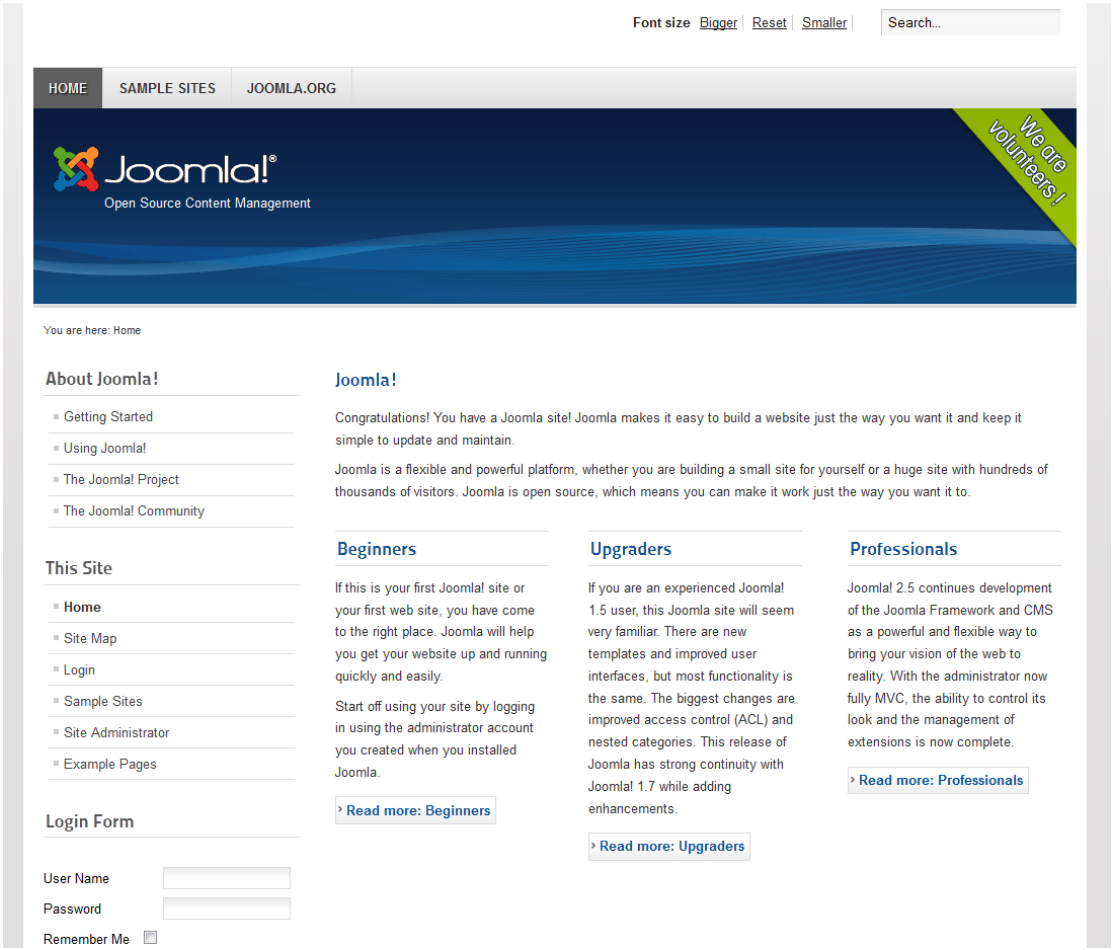

Figure 21: Example of the Joomla! website

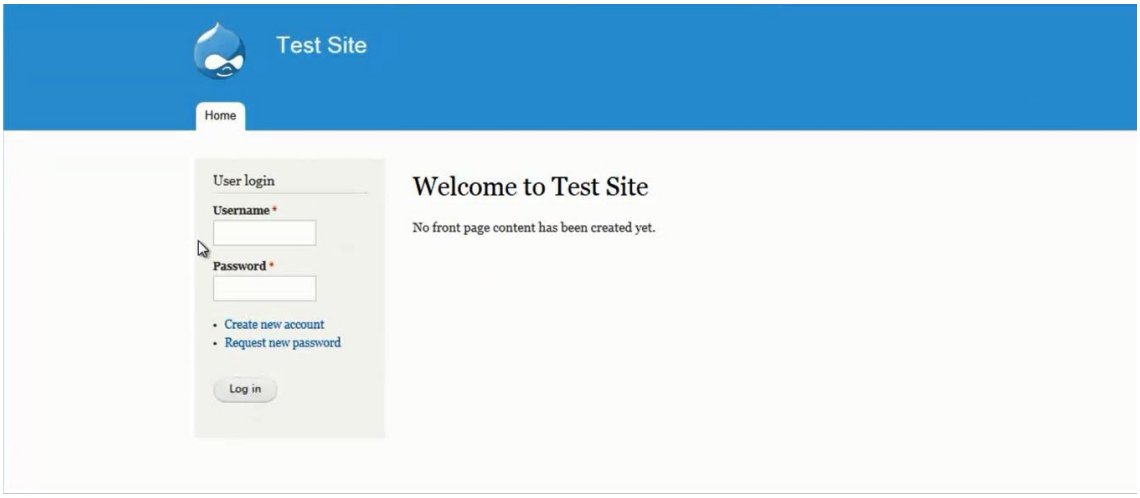

Figure 22: Example of the Drupal website

Attachment D - changes in Author.php template

```php
<?php
get_header(); ?>

    <section id="primary">
      <div id="content" role="main">

      <?php if ( have_posts() ) : ?>
        <?php
          the_post();
        ?>
        <header class="page-header">
          <h1 class="page-title author"><?php printf( __( 'Author Archives: %s', 'twentyeleven' ), '<span class="vcard"><a class="url fn n" href="' .
              esc_url( get_author_posts_url( get_the_author_meta( "ID" ) ) ) . '" title="' . esc_attr( get_the_author() ) .
               '" rel="me">' . get_the_author() . '</a></span>' ); ?></h1>
        </header>
        <?php
          rewind_posts();
        ?>
        <?php twentyeleven_content_nav( 'nav-above' ); ?>
        <?php
        // If a user has filled out their description, show a bio on their entries.
        if ( get_the_author_meta( 'description' ) ) : ?>
        <div id="author-info">
          <div id="author-avatar">
            <?php echo get_avatar( get_the_author_meta( 'user_email' ), apply_filters( 'twentyeleven_author_bio_avatar_size', 60 ) ); ?>
          </div><!-- #author-avatar -->
          <div id="author-description">
            <h2><?php printf( __( 'About %s', 'twentyeleven' ), get_the_author() ); ?></h2>
            <?php the_author_meta( 'description' ); ?>
          </div><!-- #author-description  -->
        </div><!-- #author-info -->
        <?php endif; ?>
        <?php /* Start the Loop */ ?>
        <?php while ( have_posts() ) : the_post(); ?>
          <?php
            get_template_part( 'content', get_post_format() );
          ?>
        <?php endwhile; ?>
        <?php twentyeleven_content_nav( 'nav-below' ); ?>
      <?php else : ?>
        <article id="post-0" class="post no-results not-found">
          <header class="entry-header">
            <h1 class="entry-title"><?php _e( 'Nothing Found', 'twentyeleven' ); ?></h1>
          </header><!-- .entry-header -->
          <div class="entry-content">
            <p><?php _e( 'Apologies, but no results were found for the requested archive. Perhaps searching will help find a related post.',
                 'twentyeleven' ); ?></p>
            <?php get_search_form(); ?>
          </div><!-- .entry-content -->
        </article><!-- #post-0 -->
      <?php endif; ?>
      </div><!-- #content -->
    </section><!-- #primary -->
<?php get_sidebar(); ?>
<?php get_footer(); ?>
```

Figure 23: the original content of the Author.php template file

```php
<?php
get_header(); ?>
    <?php
    $curauth = (isset($_GET['author_name'])) ? get_user_by('slug', $author_name) : get_userdata(intval($author));
    ?>
    <section id="primary">
      <div id="content" role="main">
        <header class="page-header">
          <h1 class="page-title author"><?php printf( __( 'Author Archives: %s', 'twentyeleven' ), $curauth->display_name ); ?></h1>
        </header>
        <div id="author-info">
          <div id="author-avatar">
            <?php echo get_avatar( $curauth->user_email, apply_filters( 'twentyeleven_author_bio_avatar_size', 60 ) ); ?>
          </div><!-- #author-avatar -->
          <div id="author-description">
            <h2><?php printf( __( 'About %s', 'twentyeleven' ), $curauth->display_name ); ?></h2>
            <?php
              // If a user has filled out their description, show a bio on their entries.
              if ( $curauth->description ) : ?>
                <?php echo $curauth->description; ?>
            <?php endif; ?>
            <h2><?php printf( __( 'Phone number', 'twentyeleven' ) ); ?></h2>
            <?php echo $curauth->phone; ?>
            <h2><?php printf( __( 'Email', 'twentyeleven' ) ); ?></h2>
            <?php echo $curauth->user_email; ?>
            <h2><?php printf( __( 'Skype name', 'twentyeleven' ) ); ?></h2>
            <?php echo $curauth->skype; ?>
            <h2><?php printf( __( 'Facebook name', 'twentyeleven' ) ); ?></h2>
            <?php echo $curauth->facebook; ?>
          </div><!-- #author-description  -->
        </div><!-- #author-info -->
      </div><!-- #content -->
    </section><!-- #primary -->
<?php /* get_sidebar(); */ ?>
<?php get_footer(); ?>
```

Figure 24: the new content of the Author.php template file

Attachment E - the contents of DVD

The contents of DVD:

- *Diploma Thesis* folder - It contains diploma thesis itself.
- *Presentation of Research* folder - It contains a folder called *WordPress-3.5.1* with the content, which was uploaded to the server. Then the folder contains *readme.txt* file with information about requirements of WordPress, how to install WordPress to the server, and how to log in. Then there is a link to the website with a proper information about how to work with WordPress.
- *Project Management* folder - It contains *readme.txt* file with information about where the IBM Connections 4.0 is running, how to log in, and what to do if the users want to visit and become members of the created community.