



A step by step guide for organizing open collaborative “Brainhack” events

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The brainhack meetings are collaborative workshops designed for the open neuroscience community, as recently introduced in Craddock et al. (GigaScience 2016 5:16). This document is a step-by-step guide for organizing a successful brainhack.

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WHO? WHEN?

In planning a brainhack, the first questions to answer are

1. when to organize it?
2. who is the intended audience?

Things to consider:

- The brainhack format works better with 30-80 participants.
- If you aim to attract more international participants, choose dates for your brainhack immediately before or after a large international conference, and use a location that is close to that conference.
- Brainhacks can be organized with only local folks, provided a large, energetic enough community is present in a given institution or city. Check for conference dates and poll potential participants to avoid conflicting with major meetings.
- For the past couple of years there have been distributed Brainhack events, organized by Cameron Craddock. This is a coordinated series of brainhacks happening in parallel across several cities/countries. This gives more visibility to local events, and gives participants the opportunity to engage with a larger community in the comfort of their own home town, notably through slack.

LOCATION

Next thing to do is secure a location. There are several viable options:

- hacker/maker/citizen science space. Many large cities now have a variety of spaces dedicated to hacking, making things, as well as lab spaces opened to anyone. Running hackathons is often part of their mission and they can offer cheap options for hosting. It is also a vibrant environment to run a hackathon.
- Academic institutions are also a great option. They are often able to accommodate workshops for free.
- Spaces dedicated to creation, and innovative approaches to teaching. Maybe less conventional for academics, this type of organizations has shown interest in brainhacks in the past. They sometimes have sponsorship available.

Things to consider when choosing a location:

- There needs to be a room that can host presentations. You need a projector, and comfortable sitting for all participants in a single room.
- There also needs to be some work space where participants can break up into smaller groups. Ideally this space would be separate or at least not fully overlap with the presentation room. This makes it possible to have focus group presenting on a topic, while other participants keep on hacking.
- work space should ideally include white boards and plenty of working surfaces and power outlets to avoid overcrowding, but this of course must be balanced with the other considerations.
- The ideal situation is to have the work and presentation rooms connected.
- Possibility to have onsite food and lodging is a big plus.
- Brainhack is an event focused on creation. The beauty of a space is a big intangible to consider.

SCHEDULE

A detailed explanation of the activities held during a brainhack can be found in this [paper](#). The typical schedule looks like:

Day 1:

- 9:00-9:30 Breakfast
- 9:30-10:00 Introduction to brainhack, presentation of the space and schedule
- 10:00-11:00 Project pitches
- 11:00-12:30 Team organization & open hacking
- 12:30-13:30 Lunch
- 13:30-16:30 Open hacking
- 16:30-18:00 Unconference
- 18:00-20:00 Dinner
- 20:00-(...) Open hacking

Day 2:

- 9:00-9:30 Breakfast
- 9:30-11:00 Unconference
- 11:00-12:30 Open hacking
- 12:30-13:30 Lunch
- 13:30-16:30 Open hacking
- 16:30-18:00 Unconference
- 18:00-20:00 Dinner + social

Day 3

- 9:00-9:30 Breakfast
- 9:30-11:00 Unconference
- 11:00-12:30 Open hacking
- 12:30-13:30 Lunch
- 13:30-15:00 Open hacking
- 15:00-17:00 Project wrap-ups + conclusion

Some explanation/comments:

- For a local event, a 2 days format works well. Day 2 in the schedule above can be removed entirely, with a social component added at the end of Day 1.
- Project pitches are 5 minutes long. Insist on the time (have a timer, and a 30 seconds warning). People can register on a white board. Slides / websites are optional, and can be posted on slack for smooth transition between presentations using a single computer. Projects can be discussed ahead of the meeting through slack. For examples of project, see Table 1 in the [brainhack paper](#). New: people can also pitch an expertise, so that project pitchers can latter ask them for specific contributions.

- The introduction to brainhack is important for new participants who may not know the different stages of a brainhack. Explain the different components of the event. Example slides are available here: https://docs.google.com/presentation/d/1FSys-nbyh6YgrGEFlaqhU5ePiA8yrjWtTmsXtJCJj_U/ednit?usp=sharing
- Open hacking is simply splitting people into teams and have them work on projects. It may be a good idea to assign a different table or space for each project after the project pitches.
- 15 mins before unconferences, go around to encourage people to sign up for brief, 5 mns talk. Insist on the time (have a timer, and a 30 seconds warning). But be flexible: people can request a 10 mns slot or even more, if justified. You can start a session even if only a few people signed up for talks. More people will likely sign on after the session begins. Have faith: people actually have lots of presentation ideas. Although it may break the flow of open hacking, it also helps getting everybody back together and change gear for a while. Feedback on this component of the event has been very positive, despite the interruption of on-going projects.
- Participants will very much welcome the opportunity to let the steam off during a social event. This can go from a beer at the pub for a local event to something much more ambitious ... be creative.
- Project wrap-ups are a brief recap of what people have accomplished. It is important to insist this is a progress report, not a pitch for a final product (which the vast majority of people will not achieve).
- Other elements can be added to the program, such as ice breaker, or ignite talks. Check Table 2 of the [brainhack paper](#). Special activities have not been listed there, as they are very much specific to the participants and location. Examples include (1) initiation to laser cutting for 3D brain representation, (2) visit of a DIY lab / maker space etc.
- Conclusion gives the opportunity for participants to give feedback. Ask for what they would want to improve and report to the [#brainhack-todo](#) slack channel . You can even edit this document as needed to reflect the feedback. It is also very useful to ask what they liked. First because it reinforces what we deem to be successful in the brainhack recipe, and also because positive energy is great for a conclusion. Finally, the conclusion is a good time to let people know about the brainhack proceedings series at gigascience.

LODGING

For international events, participants will appreciate to have recommendations about where to stay. Critical factors for most attendees will be (1) proximity to the location; (2) costs. Some venues in the past have offered lodging onsite for all participants. This is a very uncommon opportunity, but does help a lot to infect energy in the hackathon, because people do not hesitate to stay late.

WEBSITE AND REGISTRATION

You will need a website describing the event, with an online registration procedure. Ideally, the registration would roll until the day of the event, and it would be possible to register onsite. Some institutions may be able to handle one or both of these tasks. Alternatively, as a DIY solution, the code of some previous brainhack websites can be found here:

<https://github.com/brainhackorg>

Example of previous websites:

<http://events.brainhack.org/OHBM2016/>

<http://events.brainhack.org/vienna/>

More at <http://events.cbrainhack.org/>

The [NeuroBureau](#), the non-profit organization for Open Science behind the brainhack, can organize the collection and administration of funds. There will be a 20 euros membership per participant collected as part of the registration, to help cover the on-going costs for legal and administrative fees attached with the organization. Get in touch with info@brainhack.org to set up the financial

administration of a brainhack. Note that if someone attends multiple brainhacks within one year, membership fees will only apply once.

PUBLICIZING THE EVENT

Now that the location, date, schedule, lodging and website/registration are all in place, it is finally time to advertise the meeting. Ideally you would reach that point several months before the event for international brainhacks, because some people like to book their trips well in advance. Possible lists for diffusion:

- SPM mailing list.
- FSL mailing list.
- NITRC mailing list.
- contact all local institutions for diffusion.

Here is an example of email we used in the past:

Registration is now open for Brainhack Vienna – Reliability and Reproducibility in Connectomics (<http://events.brainhack.org/vienna>). This 3-day workshop that will be held Sept 18 – 20 in Vienna, Austria just before the 2016 Conference on Resting State Brain Connectivity. Brainhack events (brainhack.org) bring researchers from disparate backgrounds together to collaborate on problems in neuroscience. Similar to hackathons in the tech sector, much of the schedule is left open for attendees to work together on projects of their choosing. We also include unconference sessions that consist of talks that are chosen by the attendees based on their interests as they evolve throughout the meeting. Brainhacks are not “coding sprints” or exclusive to programmers, brain scientists from all backgrounds can and will make a significant contribution to the event.

Brainhack Vienna will feature open discussions and projects related to measuring and improving reproducibility and reliability for mapping functional and structural connectivity, and for relating inter-individual variation in connectivity to phenotypic variation (e.g., age, sex, IQ, disease status, etc.). The massive Consortium for Reproducibility and Reliability dataset (1,629 Subjects, 3,357 Anatomical Scans, 5,093 Resting Functional Scans, 1,302 Diffusion Scans) is the official dataset for Brainhack Vienna, and raw and preprocessed versions of the data will be available locally during the event. Attendees are also encouraged to bring their own data and project ideas.

Working papers describing outcomes from Brainhack Vienna will be eligible for publication in the Gigascience Brainhack Thematic Series. Shorter project reports from the event will be eligible for publication in the annual Brainhack Proceedings.

Registration costs €150 and includes lunch and refreshments on each of the three days as well as attendance at a reception on Monday night (Sept. 19).

Thanks to generous funding from our sponsors, \$500 travel awards will be available for a limited number of students and post docs. The application deadline for awards is July 31.

Email info@brainhack.org for more information.

PROJECTS, SLACK AND HACKPAD

People can start advertising projects on slack ahead of the event, by sending messages to @channel on the #general channel of the brainhack slack. The [following page](#) allows any participant to register to the brainhack slack. It is also good to create a hackpad open collection, like this [one](#), where people can post and collaborate on project descriptions. A link to that collection can be pinned to the #general brainhack slack channel, so it can be easily found by participants.

ONSITE LOGISTICS

The following tasks need to be addressed onsite:

- Have a volunteer at all times to answer question, help plug computer etc. Free registration can be used to attract volunteers.
- Ask to a number of participants to each chair an unconference session. This will relieve stress on the main organizer, and bring some diversity to the event. Chairing a session also includes to go around before the session to remind participants to sign up for talks.
- Have material to print name tags on site, as well as (possibly) some coupons for meals.
- Have instructions for accessing the wifi printed and easy to spot.
- Have a registration desk in the morning that distributes name tags, and make sure before printing name tags that people are properly registered.
- Deliver certificates of attendance. Some institutions require them for participants to get reimbursed.
- Print a banner for the event. Here is a link to an [old project](#), developed by [Daniel Margulies](#) and [Sebastien Dery](#).
- For international events, having surplus plug adapters can come handy. If feasible, ask people from different countries to bring power bars, such that a single adapter can be used to power many computers.
- During hot days, having air conditioning in the hack rooms will be appreciated.

FOOD

We find communal and flexible meals to be crucial to successful collaboration during brainhack. This can be achieved at relatively low cost (e.g. if there is a cafeteria onsite, or the possibility to run a BBQ). The crucial two points to keep in mind when planning meals are that:

- Flexibility is important. When collaborating on a project, it may be more productive to continue working for an extra hour than to take a break at precisely noon. Sandwiches and other availability of snacks throughout the day also help create a flexible working environment.
- When it is time for a break, meals are a great opportunity to catch up with others and share ideas. Providing this space during a brainhack may seem like a luxury, but it is central to creating a productive and friendly atmosphere where all feel included. In all, the two hours per day spent together at meals during a brainhack are well worth the cost of food to participants.

BUDGET

Costs for running a brainhack may include:

- meeting space (ideally, provided for free by a local academic institution)
- food (see above)
- miscellaneous printing costs (name tags, schedule posters, poster-size paper for unconference planning)
- travel award (if funding is available).

Funds for the hackathon can come from various sources:

- registration costs would ideally be kept to a minimum. In the past, registration (including three meals/day) has come to 100-200 dollars, maximum.
- Some local institutions can provide support.
- Some external organizations have sponsored brainhacks in the past, e.g. those supporting open science or cutting-edge educational initiatives.
- Amazon may be willing to provide cloud services in exchange for official sponsorship.

TRAVEL AWARDS

If enough funds are available, travel awards are a great way to attract international participants. In our previous experiences, applicants were required to send:

- a one-page CV
- a one-page project proposal

The brainhack organization committee reviews each application, with extra attention put on elements directly relevant to brainhack, i.e. a project that is truly collaborative.

Here is an example of announcement email that can be adapted:

The Neurobureau is excited to announce a stipend program for Brainhack XXXX. The stipend program was created following a generous grant from XXXX to assist young investigators in attending Brainhack 2013. Without their support, the stipend program would not exist.

The application for stipend requires: (1) A 1 page Brainhack project proposal (pdf format) (2) A 1 page CV (pdf format - no strict specifications. To apply, please send the above details to XXXXX. The deadline to apply for one of the stipends is 11:59PM EST on XX XXX XXXX. All decisions will be made by XXXXX and must be accepted within three days of being awarded.

PUBLICATIONS

Finally, brainhack participants have the opportunity to submit a short project report for publication as part of the brainhack proceedings, edited by Gigascience. Contact info@brainhack.org or check brainhack.org for details on the latest issue.

CONTRIBUTIONS

The concept of brainhack has been defined and continuously refined since 2012 by the brainhack community, and was started by a collective operating under the name "Neurobureau" (neurobureau.org). A non-exhaustive list of contributors can be found in the author list of [Craddock et al. \(2016\)](#).

REFERENCE

Cameron Craddock, R., S Margulies, D., Bellec, P., Nolan Nichols, B., Alcauter, S., A Barrios, F., Burnod, Y., J Cannistraci, C., Cohen-Adad, J., De Leener, B., Dery, S., Downar, J., Dunlop, K., R Franco, A., Seligman Froehlich, C., J Gerber, A., S Ghosh, S., J Grabowski, T., Hill, S., Sólón Heinsfeld, A., Matthew Hutchison, R., Kundu, P., R Laird, A., Liew, S.-L., J Lurie, D., G McLaren, D., Meneguzzi, F., Mennes, M., Mesmoudi, S., O'Connor, D., H Pasaye, E., Peltier, S., Poline, J.-B., Prasad, G., Fraga Pereira, R., Quirion, P.-O., Rokem, A., S Saad, Z., Shi, Y., C Strother, S., Toro, R., Q Uddin, L., D Van Horn, J., W Van Meter, J., C Welsh, R., Xu, T., 2016. "Brainhack: a collaborative workshop for the open neuroscience community." *Gigascience*, 2016: 5, 16. doi:10.1186/s13742-016-0121-x