University of East Anglia

Neuropsychology Laboratory Guide

v.1, last updated on 15/11/2022

Neurolab

Neuropsychology Lab

This lab guide provides details about the mission, values, and practises of the Neuropsychology Lab (Neurolab) at the University of East Anglia (UEA, Norwich, UK). This guide is intended for individuals who are part of the lab, who are joining the lab, or who are thinking of joining the lab. The guide describes the practises and standards that everyone is expected to adhere to.

The Neurolab guide was heavily based on similar lab guides such as the Poldrack Lab Guide, the Aly lab guide and the recommendations by Strand (2021). The guide also incorporated feedback from the following lab members: Annie Warman, Helen Morse and Thomas Hunter.

This is very much a live document and additional modifications, and contributions are very welcome! If you wish to make modifications to the guide, please email Dr. Rossit (s.rossit@uea.ac.uk), bring this up at the next lab meeting or in our lab survey!

Please note that this guide is not a legal document and is aimed at supplementing UEA existing policies.

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Mission & Values statement

Our fundamental mission is to provide a better understanding of how the brain supports perception, action, and attention and how these abilities are affected by aging and brain disease. Ultimately, we aim to improve clinical practice in brain disease through the translation of cognitive neuroscience models and methods.

We use a broad range of methods, including neuropsychology, neuroimaging, behavioural, clinical trials, and focus groups/interviews (qualitative). We are committed to adhering to open, transparent, and reproducible research practises and thrive to continuously learn to improve our research processes.

We are committed to a positive and healthy lab research culture in which everyone feels welcomed, supported, respected, and intellectually stimulated.

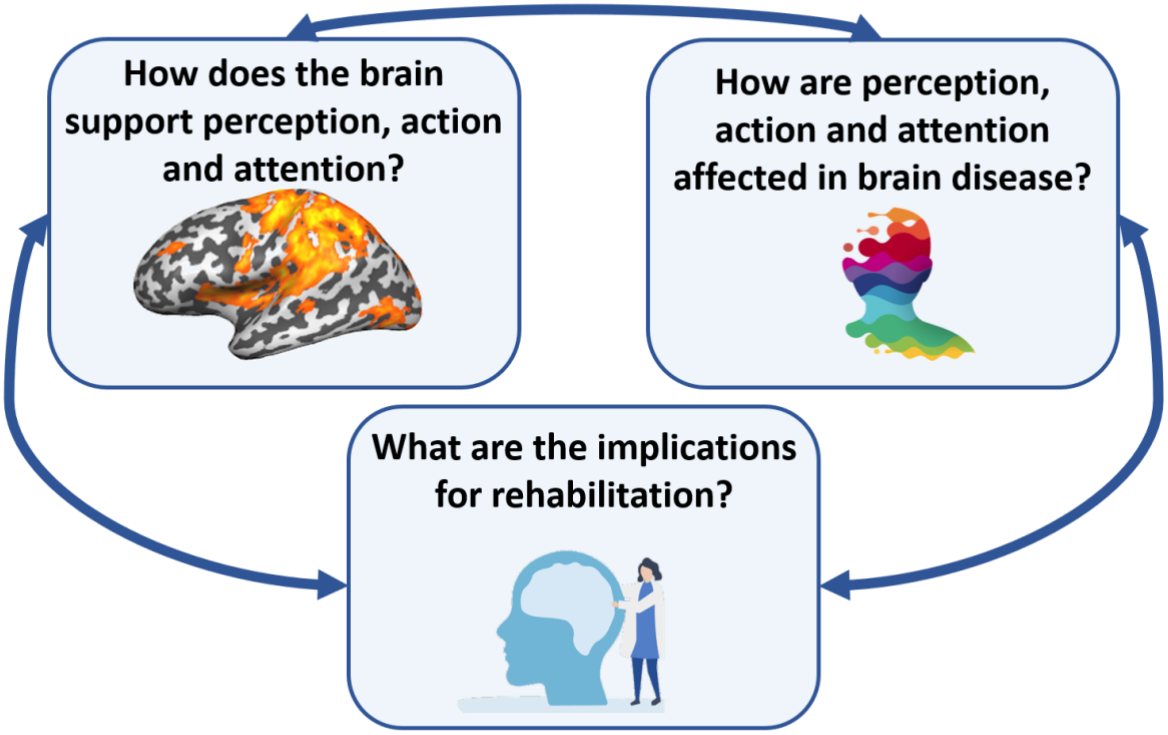


***Fig.1**. Research mission at the UEA Neurolab*

Neurolab culture

At the Neurolab, we want our lab members to feel valued, appreciated, safe, and free to be who they are. We embrace diversity and are committed to preventing discrimination against people based on any possible characteristic that makes them unique.

***Fig.2**. Brain word cloud representing top 3 words about Neurolab culture (Autumn 2022; 9 respondents)*

Code of conduct

Our Pledge to you

We aim to provide everyone a space to share their opinions and ideas within the mission and goals of the lab. We pledge to make this a community that is free from the risk of harassment, bullying, victimization, and exclusion based on personal characteristics, protected characteristics, or otherwise. Our lab aims to provide a harassment-free environment for everyone, regardless of gender identity or expression, sexual orientation, race, ethnicity, age, religion (or lack of), neurodiversity, disability status, nationality, marital status, educational status, technology choices, or any other characteristic that makes them unique.

All lab members and guests are expected to adhere to the lab code of conduct. We expect cooperation from all members to help ensuring a safe environment for everyone. In addition, all University of East Anglia affiliates are required to adhere to the University Regulations. For definitions of an act of intolerance & hate crime escalation please visit this page.

- We expect lab members to treat others with compassion and respect and will investigate any incidents and reports.

- We do not tolerate harassment of lab members, guests, or participants in any form. Harassment includes offensive verbal comments related to a person's identity or presentation of their identity. This can include denigrating comments, excessive criticism, microaggressions, or consistent interruption during talks or presentations.
- Sexual language and imagery, inappropriate physical contact, deliberate intimidation, stalking/following, are not appropriate in any lab-related context (physical or online) including lab meetings, lab social events, testing of participants, conferences, workshops, or social media.
- We advocate for openness and transparency on all our operations. We strive to adhere to open research and reproducible research practises wherever appropriate and practical.
- We welcome feedback on how we can be more inclusive and accessible and how we can provide the support and mentorship our members require to thrive, flourish and be happy in their work environment.

The Neurolab community spirit

As a community, we expect members to maintain a high standard of personal and professional conduct during both online and in-person events/interactions. Here is a list of recommended behaviours:

- Be welcoming to all lab members
- Understand and accept that opinions may differ across members
- Treat other lab members in a fair and equal manner
- Be patient and considerate of others
- Use the preferred pronouns of other lab members
- Be careful in the use of language when speaking (see APA inclusive language guidelines)
- Acknowledge and respect errors from yourself and others without any blame or guilt and, instead learn from them.
- Be reflective about your own practise and open to constructive criticism and learning
- Be bold and brave to suggest new ideas, analysis, procedures etc.
- Be open to bring-up and/or discuss issues and find solutions.
- Acknowledge the contribution of others in the work you are leading. We follow the CrediT (Contributor Roles Taxonomy) and this should be included in all our publications.
- Maintain a high standard of research integrity (see UEA research integrity webpages).

- '*Never suffer alone*' – reach out to lab members, use the Neurolab teams chat or email Dr. Rossit.
- '*Don't reinvent the wheel*' – there may be someone in the team who already knows the answer to the question you have so please ask before doing things from scratch.
- '*Team science is the best science*' – different people can bring different perspectives and knowledge, so share your science and get the views of others. Collaborating can be the best and more fun aspect of being a scientist – it certainly is for Dr. Rossit!

Work/life balance

1. We aim to promote sustainable creativity and productivity for all our members, which can't be achieved without a healthy balance between work and personal life.
2. No lab member is expected to work in ways that interfere with a healthy life. Work should not be so excessive as to interfere with sleep, exercise, or family/personal time.
3. We aim to promote an environment that is understanding and supportive of individuals with childcare and adult care responsibilities. This includes but is not limited to offering flexible work hours to help individuals with familial responsibilities.
4. The lab is committed to fully supporting individuals with chronic physical and/or mental illnesses, as well as individuals with accessibility needs. No lab member will be discriminated against because of their chronic diagnosis or health-related limitations of their ability to work.
5. Lab members are encouraged to prioritize their physical and mental health as much as possible, and the lab is prepared to support them in doing so.
6. Lab members are expected to take their annual leave in full. Dr. Rossit does and our moto is 'work hard – play harder'. Dr. Rossit usually takes 3 weeks off in August and is off during most school holidays too. Research students and staff are expected to request annual leave via e-vision. UEA semester dates can be found here.
7. Lab members are expected to be proactive regarding deadlines, to avoid last-minute scrambles. Dr. Rossit and other lab members may decline to support submissions that are prepared with insufficient lead time.
8. Lab members who are seeking time off for health (including mental health) reasons are strongly encouraged, though not required, to speak with Dr. Rossit about their concerns. Dr. Rossit commits to approaching these conversations in a non-judgmental and empathetic manner, and to working with all lab members to find a solution that works best for them.

9. At the School of Psychology at UEA testing/laboratory facilities and equipment are only usually open and accessible within working hours (9-5PM weekdays only, except bank holidays). Permission is required to use these facilities outside of working hours, weekends, or holidays (this is for safeguarding). Please discuss with Dr. Rossit if you require using labs or equipment outside of working hours.

The lab PI commitment

As the Neurolab PI, Dr. Rossit pledges to:

- Follow the code of conduct and lab guide as any other lab member.
- Support you (scientifically, career progression and personal advising).
- Give you feedback on a timely basis, including feedback on project ideas, conference posters, talks, manuscripts, figures, grants (within 2 weeks).
- Be available in person and via e-mail on a regular basis, including regular meetings to discuss your research (and anything else you'd like to discuss).
- Give her perspective on where the lab is going, where the field is going, and tips about surviving and thriving in academia.
- Support your career development by introducing you to other researchers in the field, promoting your work at talks, writing recommendation letters for you, and letting you attend conferences as often as finances permit.
- Help you prepare for the next step of your career, whether it's a post-doc, a faculty job, or a job outside of academia.
- Care for your emotional and physical well-being and prioritize that above all else.

Expectations of lab engagement

- All lab members are expected to attend the lab meeting, except in cases of unavoidable conflict (such as course scheduling, medical appointments, care responsibilities) or illness. Lab meetings generally last 1-hour, and all the members are invited to share their main activities of the previous weeks. Additional activities at the lab meeting include: presentations of research projects or data; talks by external speakers; discussions of specific research papers; data or code reviews in which a lab member's research materials is reviewed online with a focus on error checking and improvements.
- The School of Psychology also runs a Research Seminar Series with invited external speakers and Cognition, Action and Perception Research group meetings and lab members are encouraged to attend these.
- Dr. Rossit relies primarily upon email and Microsoft Teams for communication, and generally responds quickly to emails unless traveling or away from work. However, we

do not expect instantaneous responses (e-mails are not text messages). Instead, we expect lab members to respond to emails within 2 business days unless they are away from work (even if the response is simply to acknowledge receipt of the message).

- Dr. Rossit may sometimes work on a flexible working schedule (due to caring responsibilities and health issues) and may communicate to lab members outside of usual working hours and weekends. She has absolutely no expectation of a response or action from other lab members outside of their own working schedule. We aim to respect everyone's work/life balance and accommodate everyone's personal needs.
- If away from work on holiday, travel or at an event, lab members are expected to set-up an automated out-of-office message on their email with a return date and if applicable an alternative contact. This is to facilitate communication with participants, colleagues, and collaborators. Here is a suggested out-of-office email:

  Thank you for your email - please note that I am currently on [annual leave/conference] and will not reply to emails until my return [insert date]. If your e-mail regards any research studies of the Neurolab please contact neurolab@uea.ac.uk

Remote or hybrid working

The Neurolab supports the needs of lab members who must work remotely. Any full-time remote working must be first agreed with Dr. Rossit. Hybrid working must follow UEA's hybrid working policy.

Anonymous Neurolab survey

We welcome feedback from all lab members about our mission, procedures, and activity. To ensure that the environment remains welcoming and productive for everyone, we will conduct a biannual research culture survey regarding the lab environment (sent around in Autumn and Spring Term). The responses are anonymous and Dr. Rossit will present the findings after each survey and describe the actions taken to address the issues raised.

General lab policies

New members onboarding

New members of the lab are expected to:

- Read this guide in full. Consider it a guide and when you have a query about your research consult this guide. Some sections may be quite advanced for UG students or RAs but may be informative, nevertheless.
- Read and sign the 'Lab procedures for new trainees' document and e-mail this or any questions to Dr. Rossit.
- Complete the training required for their research project (see Research on human participants) and request any other training needed.
- Be given access to the Neurolab one drive folder by Dr. Rossit which contains detailed materials of our lab procedures and resources (e.g., poster making guide, talk making guide etc., guides for specific equipment, carer advice).
- Provide a photo and short bio to add to our lab webpage.

Meeting requests and procedure

- Lab members will be given access to Dr. Rossit's Outlook calendar to facilitate scheduling meetings about their research projects or general advising (inc. mentorship and careers).
- Typically, Dr. Rossit meets researchers every 2-3 weeks, but this very much depends on the individual and can be tailored to lab members needs or stages of the project. At the beginning of each research project a discussion should be had about duration and frequency of meetings.
- Queries about research and the lab are the highlight of Dr. Rossit's day so please do not hesitate to contact her.
- It's important that a meeting agenda is prepared ahead of meeting to maximize time.
- Meeting notes should be circulated following the meeting so that everyone is clear about what was discussed and actions to be taken before next meeting.
- Questions can be posted on our Teams chat or also be emailed directly to Dr. Rossit.

Research laboratories, equipment, and etiquette

- Any computers, software and data storage devices or servers used by lab members must meet the UEA IT policies and data protection guidance.
- No research materials or data should be stored outside of UEA or on personal devices.

- At the UEA School of Psychology we have access to shared state-of-the-art labs and equipment. Please discuss with Dr. Rossit your lab access and equipment needs and she will contact the appropriate team to give you access to room and booking system. The labs and equipment must be booked using the online lab booking system in Psychology before use.
- The equipment is very expensive (in the order of thousands, most hundreds of pounds or even millions) so we expect all our lab members to take great care when using it and report any damage or malfunction so that it can be sorted quickly. You will not be asked to pay for broken equipment, but we will review the incident to improve our procedures.
- All lab space and equipment are shared so be courteous and diligent in leaving things as you found them. Please don't leave problems for others to solve.

Software and Tech support

- UEA has access to a Software Centre which you visit to download specific software (e.g., Matlab) to your work PC.
- We also have specialized software licence or dongles which you may need for you work (BrainVoyager, e-prime, SteamVR, Qualtrics, Gorilla) so please discuss this with Dr. Rossit.
- At the UEA School of Psychology we are fortunate to have access to a team of technicians (including a programmer) who can answer software, hardware and programming queries that relate to our research projects, laboratories, and equipment.
- The PSY tech team can help with experiment set-up and programming depending on their capacity.
- The PSY tech team can be emailed psy.tech@uea.ac.uk with lab space, equipment and software requests. Please be mindful of the team's workload and allow sufficient time for the request.
- Discuss any requests or delays with Dr. Rossit so that she can advise the best course of action.
- Note for general UEA IT queries (e.g., email issues or software on personal computers) UEA IT service desk should be contacted instead of PSY tech team. The live chat function can be a good first point of call: https://www.uea.ac.uk/about/university-information/it-services/it-service-desk.

Administrative requests

- At the UEA School of Psychology, we are lucky to have a wonderful team of administrative staff who are the default people to send any administrative requests (such as purchasing, printing, key access, taxi booking for participants).
- Please be mindful of the staff's busy schedule and time commitments and allow sufficient time for your requests.
- You can email psy.reception@uea.ac.uk with queries.
- Any expense should be agreed with Dr. Rossit beforehand.

Neurolab participant database

- The lab manages its own participant database which includes contact details of brain injury survivors, their carers, and clinicians. We are very lucky we can access this resource for our work and most of the participants in this database have been recruited via NIHR and Stroke Association funding.
- The database is stored on the OneDrive under the Neurolab folder, and is password protected.
- Access to this database is managed by Dr. Rossit and is only given to ethically approved projects and individuals who have completed an enhanced DBS check and Good Clinical Practise training (NIHR).
- Users of this database should communicate about recruitment to avoid participant burden.
- We want to see our database grow and diversify so if you think you could recruit for the database as part of your own study, please include the consent form on your ethics application: 'Contact for future research' examples can be found here.

Neurolab shared e-mail

- The lab owns a shared mailbox (neurolab@uea.ac.uk) to communicate with older participants, clinicians, and clinical populations taking part in our research.
- As part of some projects, lab members may be given access to this e-mail. Once you have been given access to the shared e-mail, you can log-in to your email via the Outlook online app and 'add another mailbox'.
- It's expected that lab members communicate between themselves about responding to emails in this shared mailbox so that all messages have been answered or forwarded to Dr. Rossit for follow-up.

- The information on this mailbox should be handled with strict confidence and great care should be taken when communicating with participants so that no confidential information is shared with other parties.
- E-mail printing is not permitted.

E-mail etiquette

- We expect lab members to respect our code of conduct during e-mail communications. It's important to be professional when communicating using any UEA e-mail so we expect formal language to be used (e.g., Dear xx, please find attached, Thank you / Best regards).
- Lab members are expected to respond to emails within 2 business days unless on holiday, travel or away for an event. If away from work on holiday, travel or at an event, we are expected to set-up an automated out-of-office message on our email with a return date and if applicable an alternative contact. This is to facilitate communication with participants, colleagues, and collaborators. Here is a suggested out-of-office email:

  Thank you for your email - please note that I am currently on [annual leave/conference] and will not reply to emails until my return [insert date]. If your e-mail regards any research studies of the Neurolab please contact neurolab@uea.ac.uk

E-mail signature

Lab members are expected to include a standard lab signature at the bottom of their email such as:

[Your name]
[Your role]
Neuropsychology lab, School of Psychology
Lawrence Stenhouse Building
University of East Anglia
Norwich Research Park
Norwich NR4 7TJ UK
E-mail: neurolab@uea.ac.uk
Tel. +44 (0)160359 1674
Web. NeuroLab [Your social media handles if you wish]

******Read our latest Newsletter here*****

Neurolab Newsletter

- We have our own lab newsletter which we send to our database participants, collaborators, funders, and colleagues. This is circulated twice a year – Spring and Autumn – via e-mail and in print from via post. Previous issues of the Neurolab newsletter can be found here.
- The newsletter is a great way to disseminate the work in an accessible way to our participants. The newsletter also helps raise our profile.
- Lab members are expected to contribute to the newsletter with a short lay format article (max = 250 words + photo) about what they have done in last 6 months (e.g., conferences, papers, testing etc.).

Neurolab webpage

Dr. Rossit manages our lab webpage which is there to help disseminate the great work we all do. As part of your research project, you may want to suggest additions or modifications on this webpage – please contact Dr. Rossit. Input on lab webpage is very welcome!

Neurolab and UEA logos

We have designed lab logos inc. QR codes, to be included in all our documentation, materials, and presentations. Please ensure you use them to help us disseminate our identity. These can be viewed here.

Neurolab social media

- Social media is a powerful tool for promoting and increase accessibility of our research (see here) and can also be used to recruit participants (e.g., stroke survivors, clinicians etc.).
- The lab has a Facebook and Twitter account (@UEANeurolab).
- We expect lab members to follow our code of conduct when using our social media accounts and only post items that are related to our research.
- When posting your Neurolab work using your own accounts please tag @UEANeurolab and we will boost this on our lab feed too.
- If you have any achievements or information you would like to share, recruitment ads or if you would like to organize a series of tweets on a special day (e.g., world stroke day), please contact Dr. Rossit.

- We encourage lab members to boost each other's work by sharing it, liking it etc. This increases visibility for everyone and demonstrates our sense of community and support to each other.
- You may find the following link useful when creating your posts:
    - https://www.nature.com/articles/s41590-022-01243-w
- The School of Psychology also has a social media manager who should be contacted to help disseminate our work (e.g., preprints, publications, conference presentations, press releases, event participation, etc.). Please contact Dr. George Malcolm (g.malcolm@uea.ac.uk) to suggest posts which you think would help the lab disseminate our work.

Neurolab Research Practises

Your Research Project folder

- Dr. Rossit will create a project folder on OneDrive which she will share with you so that you can save all your work in one place (inc. any papers cited on your literature reviews, code, raw and processed data).
- Please request access to this directly to Dr. Rossit before beginning your work.
- This folder is backed-up and accessible to all project members even after you have moved on. You will be given editing rights so please be mindful of this.
- The folder structure should contain multiple sub-folders with logical naming, so the material is saved logically (for example code/ data/ ethics/ papers/ registered protocols/ research logs/ supervision meetings/ conferences/ training/ write-up).
- Any raw data should be uploaded immediately after data collection.
- Please leave a 'readme' file containing information about the file structure. This 'readme' file will ensure everyone understands where everything is.

Research with human participants

- All lab members engaged in research with human participants must complete the relevant human subjects training through NIHR Good Clinical Practise courses. Once complete the certificates should be emailed to Dr. Rossit.
- All lab members working with vulnerable adults (e.g., people with neurological diseases) will also need to obtain an enhanced DBS check.
- All members of the lab need to comply with the General Data Protection Regulation (GDPR) and the Data Protection Act 2018. See UEA data protection documentation here.
- No personal identifiers should ever be associated with data. This includes the 18 identifiers specified by HIPAA, as well as any other identifiers that could potentially be used to re-identify an individual.
- Consent forms or identifiable data should be stored separately from the data. We have several locked filing cabinets available in the lab and in Dr. Rossit's office to facilitate this.
- All brain imaging data should be defaced prior to analysis and sharing. Behavioural data should not contain personal identifiers (such as for example Amazon Turk ID for data collected online).
- Demographic data must be obtained for all subjects, to fulfil inclusion reporting requirements. Lab members are expected to include a version of the Neurolab demographics questionnaire in their projects and should consider whether more

inclusive questions are necessary: https://sites.google.com/site/camillanord/equality-diversity/asking-about-sex-gender-and-ethnicity-in-your-experiments.

- Blinding of experiment manipulations (e.g., participant diagnosis, treatment arm) and of participant (e.g., study aims) should be implemented or at least considered.
- All projects considered a clinical trial should be posted on ClinicalTrials.gov
- All imaging studies must follow UWWBIC guidance.

Ethical Approval

- All experimental projects must not begin data collection before appropriate ethical approval has been obtained. Task piloting may be possible without ethics, but this must be discussed with Dr. Rossit.
- Most of our research goes through ethical approval at UEA using the UEA ethics monitor online system. Please familiarize yourself with UEA ethics policy here.
- Clinical trials where we recruit from NHS facilities must gain HRA approvals.
- Please note that participants need to consent for their anonymised data to be shared in open repositories and we suggest the following sentence is added to all ethics documents as well as clarifying that anonymising data will never be deleted:
    - *What happens to my pseudo-anonymised research data?*
      Your research data will be analysed by our research team. All data will be stored pseudo-anonymously with a participant code (and not with your name linked to it). Your pseudo-anonymised data may be placed onto an online repository in line with open research practices.
    - *For qual data: Qualitative data (i.e., data from the interviews) will not be made openly available. Only themes coded with example quotes will be shared. This is because the information provided in the interviews, small number of participants, and restricted region of participant recruitment may increase the risk of participant identification.*

Public and patient involvement (PPI) in research

- At the Neurolab we are proud to involve 'end-users' in research development and follow NIHR guidance to achieve this. This ensures that our research remains relevant to the people who will one day benefit from it and, thus, helps maximize its feasibility and impact.
- Before you begin your research, you should consider whether you need to run your research ideas and/or methods by a panel of experts by experience (i.e., people who are relevant or could benefit from your research such as older participants, stroke survivors, people with dementia, amputees, carers, clinicians etc.).

- You can also invite a/or multiple PPI representative(s) (e.g., a patient from target population, member of the public, or family/friend affected by condition) to join your research team to consult with at various stages of the project.
- Charities, or the NIHR (e.g., local NIHR Research Champions) can be useful in finding PPI representatives.
- Usually, you do PPI by organizing focus group meetings/ interviews where you present your work and gather feedback.
- PPI can also be used to briefly *pilot* your experiment, for example, test if your participants can withstand the number of trials you propose to include or perceive your stimuli.
- No ethics is required for PPI activity if not used as data for a publication.
- For an example of ethically approved PPI activity that was published see Helen Morse's paper.
- You will need to have the funds to cover travel and fees of the people you invite.

Open Research and Reproducibility

- At the Neurolab we aim to adhere to the best open research practises to ensure our research is transparent, open, reproducible, accessible, and credible.
- Lab members are expected to adopt open research practises to ensure our research processes are the best they can be to meet open research requirements from journals such as: study pre-registration, open data, open code, open materials.
- Summitted papers should be uploaded as pre-prints on relevant servers, for example:
    - Behavioural papers: https://psyarxiv.com/
    - Neuroscience papers: https://www.biorxiv.org/
    - Clinical trials/medical papers: https://www.medrxiv.org/
- When possible, depending on funding available, we will pay for open access of our publications.
- If applicable, we also submit our research ideas as registered reports – this is a publication that describes the study before data collection. This paper is peer-reviewed and if accepted in principle it's published regardless of positive or null results (e.g., Annie Warman's RR).

Open research training

All lab members are required to engage with open research practises and as a starting point we recommend:

- Read the following papers:

- https://www.nature.com/articles/s41562-016-0021
- https://bmcresnotes.biomedcentral.com/articles/10.1186/s13104-022-05942-3
- https://www.nature.com/articles/s41562-021-01193-7
- https://www.nature.com/articles/s41386-022-01418-x

- Attend the monthly UEA ReproducibiliTeas
- Explore the UEA open research pages
- Explore the UEA Research Integrity pages

Pre-registration

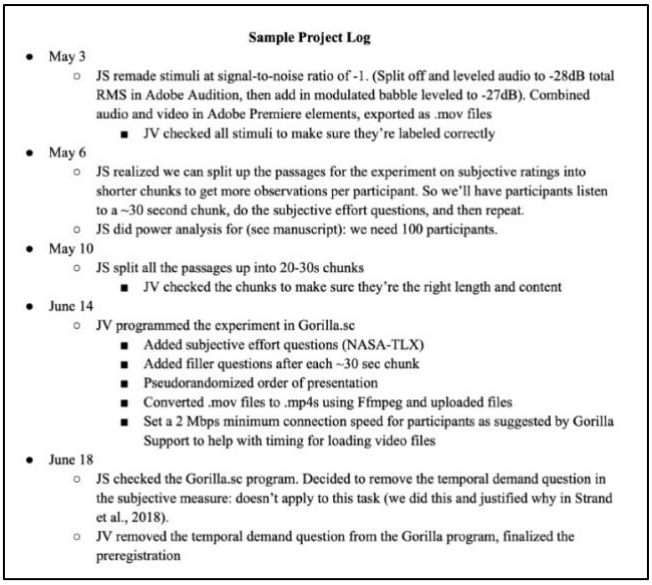
- All empirical projects must be pre-registered, preferably using the Open Science Framework. Templates for pre-registration can be found on Open Science Framework page:
  - Behavioural/ Standard: https://docs.google.com/document/d/1DaNmJEtBy04bq1l5OxS4JAscdZEkUGATURWwnBKLYxk/edit?pli=1
  - Neuroimaging: https://osf.io/6juft/
  - Qualitative study: https://osf.io/zab38/wiki/home/
  - Secondary data analysis preregistration: https://osf.io/x4gzt/
- Pilot studies need not be pre-registered but should then be subject to a pre-registered replication or extension.
- Pre-registration should include as much detail as possible and needs to be reviewed by Dr. Rossit and any collaborators before data collection.
- Pre-registration must include at minimum:
  - Research question and justification
  - Sample size (with justification); useful tools here are Gpower for example. This article may be helpful.
  - Inclusion/exclusion criteria (these should be clearly justified)
  - Criteria and procedures for outlier exclusion and data transformation (even if you can't say exactly how you will do it, outline your procedures for determining how to do it)
  - Primary hypotheses or outcomes to be tested (or an explicit statement that the study is simply exploratory)
- For fMRI studies, pre-registration should also specify:
  - Any anatomical regions of interest to be used (with a specific definition and/or image mask for the region)
  - Motion modelling strategies (including trial- or subject-level exclusion criteria)

- Confound modelling strategies at the trial-, subject- and group-level (including the specific design of response time modelling strategies)

- Deviations from pre-registration
  - Pre-registration should not be viewed as handcuffs. If a detail of the pre-registration is clearly suboptimal, then the rationale for using a more appropriate method should be noted, and the optimal method should be used.
  - Dissertations, conference presentations and publications should include an explicit “Deviations from pre-registration” section that outlines any deviations and their rationale.

Documenting research activities

- Detailed procedures should be documented digitally throughout any ongoing research activities, including recruitment, experiment running procedures, verbatim instructions, equipment set-up, analysis, and readme files for any code base.
- Documentation should be sufficient to allow a new researcher to be able to understand and replicate any ongoing research procedures with minimal (ideally no) additional guidance from other research staff.
- Lab members should create a checklist to help run experiments consistently and smoothly containing the instructions to be read out to participants.
- During project development, a **Project Log** should be used to document design choices and their justification, development and testing the set-up, code, procedures, concrete steps in research process (e.g., AW wrote the code), instructions and piloting, volume and luminance settings, room details and notations of when things were checked by another lab member (see Fig. 3 for an example). The project log should be a document that everyone on the team involved contributes to and will help facilitate understand how the work was done, why and by whom.



Sample Project Log

- May 3
  - JS remade stimuli at signal-to-noise ratio of -1. (Split off and leveled audio to -28dB total RMS in Adobe Audition, then add in modulated babble leveled to -27dB). Combined audio and video in Adobe Premiere elements, exported as .mov files
    - JV checked all stimuli to make sure they're labeled correctly
- May 6
  - JS realized we can split up the passages for the experiment on subjective ratings into shorter chunks to get more observations per participant. So we'll have participants listen to a ~30 second chunk, do the subjective effort questions, and then repeat.
  - JS did power analysis for (see manuscript): we need 100 participants.
- May 10
  - JS split all the passages up into 20-30s chunks
    - JV checked the chunks to make sure they're the right length and content
- June 14
  - JV programmed the experiment in Gorilla.sc
    - Added subjective effort questions (NASA-TLX)
    - Added filler questions after each ~30 sec chunk
    - Pseudorandomized order of presentation
    - Converted .mov files to .mp4s using Ffmpeg and uploaded files
    - Set a 2 Mbps minimum connection speed for participants as suggested by Gorilla Support to help with timing for loading video files
- June 18
  - JS checked the Gorilla.sc program. Decided to remove the temporal demand question in the subjective measure: doesn't apply to this task (we did this and justified why in Strand et al., 2018).
  - JV removed the temporal demand question from the Gorilla program, finalized the preregistration

***Fig.3**. Sample project log (Strand, 2021)*

- During recruitment, a **Participant Booking Log** must be used. This will be a spreadsheet used to document who has been contacted, when and by whom to take part, their response, taxi booking, or parking arrangements sorted and whether letters or reminders have been sent.
- During data collection, a **Participant Testing Log** must be used to document testing notes (like a lab diary). This will be a spreadsheet that provides notes about anything unusual that happened during data collection. This should include:
  - Experiment name
  - Date and time
  - Lab member name
  - Anonymised subject code
  - Demographics and any other questionnaires completed (Y/N)
  - Order of experiment (tasks and code versions used)
  - Testing notes (equipment used, experiment crashed, needed to calibrate twice, testing interrupted, fire alarm on etc.)
  - Participant notes (e.g., fatigue, not engaged)
  - Raw data backed-up on OneDrive (Y/N)
  - Anonymised data stored and separated from identifiable data (Y/N)
  - Reimbursement processed (Y/N)
- The participant testing log will be used to make decisions about excluding participants prior to looking at their data and can help clarify missing or mislabelled data (Strand, 2021)

- This documentation should be ready to be made available to any lab members at any time and must be saved inside the research project folder.
- The logs should be reviewed by Dr. Rossit before the data collection begins.

Experiment set-up and piloting

- The set-up of an experiment is probably the most important part of a research project. It can be time-consuming and involve coordination with multiple teams (e.g., PSY tech, PSY admin, NHS) so allow sufficient time for this.
- Testing and troubleshooting of a new experiment should be performed before 'real' participant testing to allow detailed test and re-test of experimental code, procedures (i.e., calibration), practise of protocol (instructions) and run analysis on simulated or pilot data. The philosophy here is to think of everything that could go wrong and modify your procedure accordingly. The last thing you want is to collect 100s of participants and then find out the code did not save the data correctly or there was noise in your measurement.
- Great care should be taken to reduce the influence of confounding variables which could affect participant performance such as noise, lighting, other objects around and to ensure that equipment is easily accessible and there is minimal risk of injury (e.g., falls).
- Great care should also be taken to check data, trial and condition orders are saved correctly and experiment and analysis code run smoothly.
- Before data collection begins, lab members must arrange for Dr. Rossit to check the set-up, code, testing procedures, observe pilot participant testing and check the pilot data as well as first participant data. This will minimize time wasting as reassure everyone that full data collection can begin.

Code management and sharing

- All code should be managed using a version control system, preferably git.
- Code should be regularly pushed to a remote server, preferably GitHub. The lab has a Neurolab GitHub account which should be used for this purpose. You can be added to this by contacting Dr. Rossit.
- All code should be associated with a General Public License Version 3.
- Any substantive code copied or adapted from another source should be attributed to the original source.

- Care must be taken to avoid sharing private passwords, Credentials, and other confidential information when using GitHub. Any accidental breach should be dealt with and reported to Dr. Rossit and other relevant parties immediately.
- All code should be reviewed by one other lab member, collaborator or PSY programmer prior to data collection, analysis, and submission. Consider implementing checking at regular intervals rather than at the end of a project.
- A release should be generated for any submission, containing the exact code used to implement all the included analyses.
- The GitHub repository should be connected to a DOI for each release, and this DOI should be included in the manuscript.
- All code should be made available via GitHub, upon submission of the preprint at the latest.

Coding standards

- **Code should be readable**. The following e-books are a good resource of principles of readable coding (freely available at UEA library after entering email):
    - Art of Readable Code
    - Clean Code A handbook of agile software craftmanship
- **Code should be modular**:
    - Functions should do a single thing that is clearly expressed in the name of the function.
    - Functions should include a docstring that clearly specifies input and output.
- **Code should be portable**:
    - Any absolute paths should be specified as a variable in a single location, or preferably as a command line argument.
    - Any required environment variables should be clearly described.
    - Any non-standard requirements (e.g., Python libraries) should be described with instructions on how to install.
- **Important functions should be tested**.

Data management and sharing

Data Management

- All research materials (e.g., stimuli, materials, questionnaires, code, and data) should be stored on your research project folder which is automatically backed-up on One Drive (which provides free storage via your UEA login).

- Stimuli and Materials created by the lab members (e.g., images, sounds, 3D models of objects, equipment designs, interview themes) should be shared before publication submission (see next sections) to facilitate peer-review and allow full replication testing by other researchers.
- All raw and processed computerized data should be back-up on the OneDrive research project folder under raw and processed data.
- The raw folder should be left untouched, and any analysis should always be run on copied raw data to avoid loss or corruption of raw data.
- All anonymised paper-based data should be scanned and uploaded on the OneDrive research project folder
- Every dataset should be organized with the goal that another researcher could take the dataset and immediately understand its content without the need to ask questions of the dataset owner.
    - For non-imaging data, files and folders should be named and organized using the Psych-DS format when possible.
    - All imaging data should be organized using the BIDS format.
    - Variable names should be as expressive as possible, with automated parsing in mind. The structure of variable names should follow the key-value schema used in BIDS (with key and value separated by a dash, and key-value pairs separated by underscores). All embedded numbers should be zero-padded. Examples: for item 5 on the Barratt Impulsiveness Scale, the variable name might be “survey-BIS_item-005”.
- All datasets should be accompanied by a data dictionary that specifies the meaning of each variable. This should be stored along with the code.
- For studies that involve manual data processing/scoring or interview transcribing there should be explicit instructions. Blinded double-coding (2 lab members) should be implemented to ensure consistency and assessment of inter-rater reliability.

High performance computing

- For some projects using machine learning (e.g., fMRI or EEG MVPA) uploading data and running code on high performance computing (HPC) at UEA will be necessary.
- The HPC team helps with computationally challenging workflows in all areas of science and big data at UEA.
- You will need to request access to the ADA cluster (UEA’s HPC) yourself and attend their training courses. More info here.

Data Sharing

- All anonymised data generated within our lab should be shared upon publication at the latest, and preferably upon submission.
- In some cases, we may work with datasets that we are not able to share in full, due to data use agreements or legal restrictions. In this case, we will push to share at least the processed data necessary to run the primary statistical analyses.
- For lesion mapping data only VOIs (lesion maps) should be shared as we cannot share the clinical scans due to issues with anonymity.
- If handling qualitative data, we will not be able to share scripts of interviews as they may be easily identifiable, but instead we should only share the themes coded along with quote examples.
- Data will be shared through platforms that allow generation of a DOI:
    - Open Science Framework is the preferred platform for behavioural and lesion data
    - OpenNeuro for neuroimaging data
- Large data files should not be committed to GitHub repositories. Small data files may be hosted on GitHub, but it should not be the primary sharing platform.
- A snapshot should be shared that matches exactly the analyses in the publication, and which can be analysed directly using the shared analysis code.
- All data will be shared with an explicit data use agreement (aka “license”)
- We prefer the minimally restrictive license possible for our data, preferably CC0
- All data should be shared with an explicit description of how they should be cited.
- When using shared data, lab members should ensure that they properly cite the data source in any publications using the language recommended by the data owner.
- For examples of our shared datasets see: https://research-portal.uea.ac.uk/en/persons/stephanie-rossit/datasets/

Open Science Framework project page

- Each research project should have a OSF page where pre-registration, data, code, and materials are shared/linked to.
- Dr. Rossit must be added as a collaborator to all OSF pages regarding Neurolab projects.
- Before making any OSF page public, the content should be reviewed by collaborators to ensure its ready.
- All OSF pages within our lab must be made public upon submission (at the latest) to facilitate peer-review.

- For examples of OSF pages see: https://osf.io/hyj6w/.

Data Collection

Participant codes and file naming conventions

- Participant anonymised codes should be created as soon as someone joins a study and should not contain any identifiable information (e.g., initials).
- Creation of participant code: letter before 1st letter of surname; 1st letter of mother's 1st forename; day of birth (e.g., QP30). They may be different for NHS trials.
- Data should be saved using this file naming convention: ParticipantCode_Experimentname_SessionNumber_ConditionName_BlockNumber (e.g., QP30_3Dobj_S001_RealGrasp_B01).

Participant testing etiquette

- Participants should be treated like our most important guests (in essence VIPs). They are giving up their precious time to help our research.
- It's expected that lab members do their upmost, so participants enjoy the experience of taking part in our research and monitor this throughout the session (e.g., check if they need breaks).
- During testing, lab members are expected to dress with comfortable but clean clothing and act professionally as we are representing the university.
- Lab members must contact the participant to book a time slot that is most convenient for the participant.
- Lab members must communicate clearly with external participants about the location of testing, parking arrangements, any reimbursement and give their contact number in case participants are lost or late. This can be done via e-mail or letter and example of this can be found here.
- Lab members must remind external participants of the upcoming session 1-2 days before via phone call (this is especially important for people with neurological disease).
- Lab members must arrive at the meeting location at least 5min before the meeting time and have their phone with them so participants can contact them.
- For home visits, lab members should try not to arrive too early as participants may not be ready and if late due to traffic should notify participant immediately.
- Participants may request their research results, but this should never be provided to them or their families as our tools are not validated clinical measures and are still under development. We offer to provide group results at the end of the study only.

- If lab members are feeling unwell or show any covid symptoms, they should cancel the session immediately.
- When working with vulnerable adults it is strongly recommended that lab members carry out frequent covid testing (twice a week) and wear a mask. Mask wearing is not obligatory and lab members should be aware that participants may say it's not necessary (we leave this decision at the lab member's discretion).

Safety

- The safety of our lab members and participants is our upmost priority.
- All members of the Neurolab are required to complete a Research Safety Checklist before data collection.
- Testing out of working hours, weekends or bank holidays is usually not permitted and needs approval by Dr. Rossit.
- In case of an emergency (threat to life) please always call 999.
- We have a phone in the V&A lab to allow calls to UEA security (extension 2222).
- If disagreements with participants happen or a lab member is uncomfortable in any way, please simply end the testing session and leave politely. Please report the incident immediately to Dr. Rossit.
- Safeguarding procedures for lone working must be in place.
- If testing away from UEA (e.g., in patients' houses) a text should be sent to Dr. Rossit at arrival and departure and she should have easy access to participant code, and the number of the next of kin of lab member. If no response is obtained by Dr. Rossit she will contact next of kin and then, police.
- It's recommended that lab members do not accept food or drink from participants and locate the nearest exit door during the session.

Participant reimbursement (SONA credits, fees, vouchers)

- Any financial participant payments must first be agreed with Dr. Rossit.
- It's important that we reward our participants appropriately and promptly.
- If recruiting via PSY paid panel participants must be paid.
- In most studies we follow the PSY participant payment procedures, and this also needs to go through ethical approval.
- In studies with clinical populations, we have traditionally not paid participant fees as it could be considered coercion. Please discuss this with Dr. Rossit.

Research expenses claim

- Any research expenses (travel miles, cash payments, printing, stamps) must be first agreed with Dr. Rossit.
- Receipts must be kept for all expenses.

- These should be claimed in bulk (once a month) via the UEA expense claim system (unit4 ERP).

Data analysis procedures

Exploratory vs. confirmatory analysis

- We affirm the scientific utility and importance of both exploratory and hypothesis-driven (confirmatory) research, but it is essential that they be clearly distinguished.
- All research will be considered exploratory unless the hypotheses and analysis methods were pre-registered.

Data quality control

- For datasets where it is feasible, the data should be visually examined for outliers or aberrant patterns using pair plots or other appropriate methods.
- Analysis procedures should be tested on the first participant (for fMRI) or first few participants (for behavioural studies) before collecting any additional data, to ensure that the data are appropriately recorded.
- For MRI data being acquired by the lab, researchers should run quality control testing within one week of acquisition and before acquiring more data.

Code Validation

- When possible, all analysis code should be tested on simulated data to ensure positive and negative control prior to data collection.
- Positive controls should ensure that effects of interest are detected when present
- Negative controls should ensure that no effects are detected when the null is true
- In some cases, it is necessary to understand the nature of the data (e.g., distributions of variables) to develop appropriate analysis. In these cases, the researcher will ask Dr. Rossit or another lab member to generate a simulated dataset based on their actual data (e.g., by randomly shuffling the observations of each variable to create a knockoff dataset that maintains each variable's marginal distribution), prior to any analyses.

Multiple analysts

- When possible, all data analyses should be replicated by an independent analyst who is blind to the results of the initial analysis.
- If discordant results are observed, then the analysts will work together to determine their source, and whether they reflect error versus true analytic variability.

Reproducible analysis

- All analysis procedures should be implemented in code and runnable with a single command.
- We aim to avoid any analyses that involve manual intervention. If such analyses are necessary (e.g. for identifying anatomical brain regions), the specific protocol should be described, and if possible the manual operation should be recorded using screen capture.
- The entire software environment should be at best reproducible, or at minimum recordable.

Statistical analysis

- Do not hesitate to contact Dr. Rossit for any queries regarding your statistical analysis.
- We collaborate with a medical statistician at UEA who can help with more advanced data analysis if required.
- Null results are as accepted and valued as positive findings and we do not tolerate pressuring lab members for positive effects. Instead, we focus on adopting the best research processes, understand our data and report it transparently and openly.
- Methods for multiple testing correction should be chosen prior to data analysis and reported in the preregistration document.
- Effect size, parameter estimate, standard error, p-value, and confidence interval should all be reported.
- In cases where null effects are reported, some measure of evidence for the null hypothesis (e.g., Bayes factors, equivalence tests) should be reported.
- Results for all analyses that were preregistered should be reported.
- Best practise data visualization methods should be implemented with graphs representing both group an individual data. R is a great tool for data visualization, and we recommend as a good starting point this preprint and this website.
- A colour palette which is visible for people with colour-blindness should always be used - https://davidmathlogic.com/colorblind/#%23D81B60-%231E88E5-%23FFC107-%23004D40

Literature Review and Citations

-
- Lab members should use a citation manager (e.g., Zotero) rather than typing references by hand.

- It's recommended that there is an independent checker for publications who ensures that each paper cited supports the claim being made and that all cited papers appear in the reference section (Strand, 2021).
- Research shows that papers authored by female neuroscientists are cited less than papers authored by males – let's break this bias! To do so we recommend using the gender citation balance index tool to evaluate gender bias in references and include this along with other metadata (such as acknowledgement, grant funding) using the citation diversity statement. You may find this ReproTea talk helpful.

Error Hunting and dealing with mistakes

- **'*Scientists, being human, make mistakes*'** (quote from Strand, 2021).
- At the Neurolab **mistakes are expected, respected, inspected, and corrected**.
- We know mistakes happen and, thus error hunting is encouraged.
- Checking for errors is not an indication of a lack of trust, its simply part of the research workflow (Strand, 2021).
- Throughout our research processes we have embedded several error hunting procedures based on the recommendations of Strand (2021; e.g., code checkers; data checkers; logs etc.).
- We want to avoid making errors in our research process and are willing to accept slower, more methodological progress to achieve this (Strand, 2021).
- When mistakes happen (or nearly happen) in the lab, it's a great opportunity for us to figure out how to make our systems work better. We can then use what we found to improve our workflow (Strand, 2021).
- No lab member will ever be penalised for reporting an error or a near miss.
- It's always best to discover errors before publication.

Intellectual property

- All products of research at UEA (including data and code) are the property of the University unless specific IP agreements are in place (e.g., industry partners or funding). Please consult the University's IP policy.
- Lab members have blanket permission to make our code open, as all our code is intended to be made openly available, as discussed in the section on code sharing.
- After leaving the lab, trainees can continue to reuse any code or other research materials (e.g., stimuli) developed as part of their work in the lab if the code has been

released under an open-source license and they continue to abide by the terms of the license.

- As discussed in the section on data management and sharing, all data collected within our laboratory is meant to be shared upon submission of the related paper. In cases where these data can be deidentified they will be shared under a public domain dedication (CC0), which places no restrictions on their use by other researchers. Thus, any researcher can continue to use those data once they leave the lab.
- For some projects which involve an industry partner you may be asked to sign a non-disclosure agreement due to IP and sharing of code, materials or data may not be possible.
- For info on types of IP licenses please visit: https://creativecommons.org/
- It's expected that lab members discuss ownership and role in publications at the beginning of each research project to avoid misunderstandings (see next section).
- Lab members are encouraged to discuss research ideas and collaborate. If ideas are developed jointly then recognition for this should be given from the outset.
- Lab members are encouraged to discuss openly independent research projects in the lab or related research done after lab departure. Dr. Rossit is very happy to support this but would appreciate that this is discussed to avoid duplication or any misunderstandings.

Publication and dissemination

Authorship policy

- Authorship should be discussed at the beginning of each research project so that everyone involved is clear about their role and time they should devote to the work. Of course, people's roles may change during the actual running and write-up but it's important that this is then revisited.
- We follow the guidance developed by CRediT (Contributor Roles Taxonomy) and this is used to decide who should be author of the publications. A CRediT statement should be included in all our publications.
- Importantly, we view substantial contributions to data acquisition or analysis alone to be sufficient for authorship. For this reason, research assistants, UG dissertation students in our lab often end up being co-authors on our publications.
- The sharing of data or stimuli on its own is not considered to be sufficient to warrant authorship; instead, credit should be given through citation of a data descriptor and/or DOI. However, authorship is appropriate in cases where the dataset or stimuli owner provides substantial input into the research, or when required by the data use agreement.

Conference Presentations

- It is expected that lab members present their research at national and international scientific conferences frequently as posters or talks. Talks are most encouraged for 2nd year PhD researchers onwards or for people who have presented a poster before.
- To do so they must prepare and submit an abstract via conference portal by the deadline advertised. Please note that abstract submission deadlines are often much earlier than the conference itself (sometimes 6-9 months) so keep an eye on deadlines and plan your data collection and analysis with this in mind.
- Complete datasets are not always required to present at conferences and preliminary data and analysis can be submitted.
- Some conferences allow presentation of pre-registrations/study ideas. This is encouraged.
- For a guide on how to write an abstract please see here.
- A **draft of conference abstract** should be sent for review by Dr. Rossit **at least 1 week before submission deadline along with the data, code, and results**. The abstract should also be circulated to all co-authors for review before submission following Dr. Rossit's approval.

- Lab members are not expected to fund conference attendance from personal funds, and this should be discussed with Dr. Rossit ahead of abstract submission.
- Many conferences and societies often advertise travel awards to cover the expenses inc. registration, travel, hotel accommodation, and subsistence. The Guarantors of Brain also provides funding to support conference attendance and there is also some funding at UEA to support research students (RSTG or faculty funding). Please prepare a budget and discuss with Dr. Rossit who can help develop and support your conference funding applications. A few examples of previous applications can be found here.
- When booking accommodation please ensure to be safe and consult with rest of the team so that we all stay near each other. Sharing accommodation (apartments) should be considered to save funds but is not mandatory. Room sharing should be avoided unless agreed.
- A long list of relevant research conferences found here. Our *favourite* conferences are (in order of preference):
    - Vision Sciences Society Annual meeting (Florida, USA)
    - British Neuropsychological Society Autumn and Spring meetings (London, UK)
    - Experimental Psychological Society meetings (UK various; please note this is like 'Glastonbury' conference for Psychology and you need to submit abstract on the same hour as submission portal opens)
    - Organization of Psychological Research into Stroke (UK various)
    - British Association for Cognitive Neuroscience (UK various)
    - Federation of the European Societies of Neuropsychology (EU various)
    - Society for Neuroscience (USA alternates between San Diego or Chicago)
    - European Conference of Visual Perception (EU various)
- Once the abstract has been accepted, a presentation must be prepared and its mandatory that this is reviewed by Dr. Rossit. **Presentation drafts** should be sent to Dr. Rossit **at least 15 days before departure**.
- **A practise run must be done with lab members before departure** to conference.
- Posters and Talks can be both prepared using PowerPoint. For poster making guide and examples click here. For examples of talks please click here.
- Conferences will have specific guidance about required poster size and duration of talks so please read these carefully.
- Posters can be printed at UEA via print services on campus and requested by email: printservices@uea.ac.uk.

- We recommend cloth poster printing rather than paper as its easily portable.
- Poster printing will require extra time - we recommend allowing 1 week to do this.

Writing and submitting a research paper

- Ideally, we aim to publish all our research projects in peer-reviewed scientific journals. Publications are the 'bread and butter' of scientists and really matter for career progression. Having a research project published demonstrates that you are productive as it's the visible outcome of the research.
- Each scientific journal will have its scope, aims, formats, and rules so it's important to agree on a journal with Dr. Rossit before writing the paper.
- For a guide on how to write a research paper please click here.
- Usually writing a paper takes multiple iterations, much editing and it's a true collaborative effort between the lab member(s) and Dr. Rossit. Structures of sections and figures should be agreed before they are drafted.
- Papers should never be submitted before all authors have had a chance to read and comment on the work so once you have the go ahead from Dr. Rossit please send to other collaborators and give them 1 week to respond. When emailing collaborators with draft, inc. a link to shared code and data as well.
- To submit a paper, generally you will need:
    - Doc file of the paper draft
    - Images files of your figures
    - Cover letter
    - OSF page set-up and all open materials uploaded (code uploaded on GitHub)
- Following submission there are several possible outcomes:
    1) desk rejection (editor rejects paper without sending to peer review).
    2) rejection after peer review.
    3) rejection with invitation of resubmission.
    4) acceptance with major revisions.
    6) acceptance with minor revisions.
- The peer-review process can be harsh, rejection stinks, but it's important that you understand that rejection does not necessarily reflect the quality of your work. Instead, embrace reviewer comments as constructive criticism but acknowledge that it may take a few days until you can do that, as the first stage of dealing with rejection or comments from reviewers is ranting (well, at least for me 😊). Don't give up and keep trying. I found reading this article quite helpful.

Open access and preprints

Open access

- When we select journals for publication, we will prioritize publishing in journals that do not charge publication charges and offer an Open Access option.
- When project funding is not available for publication fees the journal options should be discussed with Dr. Rossit.

Preprints

- All papers should be uploaded to a relevant preprint archive prior to or upon submission, unless the target journal does not allow preprint publication.
- Our general policy is to avoid publishing in journals that do not allow preprint posting unless there is a very strong reason to do so.
- The most common preprint servers we use are:
    - Behavioural papers: https://psyarxiv.com/
    - Neuroscience papers: https://www.biorxiv.org/
    - Clinical trials/medical papers: https://www.medrxiv.org/

Funding, disclosures, and conflicts of interest

- In any form of dissemination inc. dissertations, presentations, and publications you should always disclose any external funding received, contributions in-kind (e.g., equipment or software contributions, recruitment support) or conflicts of interest. This should be disclosed along with grant numbers and/or industry partner name, charity name and any logos.
- Before any publication, approvals should be thought from industry partners (and sometimes funders or charities) involved in the project.

Addressing errors

- If we identify an error in a published paper from the lab, all authors should convene promptly to discuss what if any conclusions are affected by the error. Most journals have a mechanism for either publishing a correction to the article when the primary conclusions of the paper are not substantially affected or retracting the article if they are.
- All authors should agree on whether a correction or retraction is warranted, and promptly notify the journal of their recommendation and the nature of the error.
- If applicable, a notification and corrected version of the article should also be submitted to the preprint server and internal copies of the paper should be corrected and versioned accordingly.

Science Dissemination

- The lab frequently participates in science festivals (Norwich Science Festival, Pint of Science). For example materials see here.
- We affirm the importance and value of engaging with non-expert audiences and support the efforts of lab members in service of science communication. We encourage lab members to work to develop their science communication skills and to seek out opportunities to engage with the public about science.
- In some cases, laboratory findings may be of sufficient public interest to warrant a university press release. In these cases, we will work with the University's public relations team to develop a press release. In our interactions with the public relations team, we will express our intent to not exaggerate or oversimplify the findings.
- If we are contacted by members of the press about our research, we will try to make ourselves available for comment to the extent possible. We will work to use accessible language while also communicating the nuances of our work. We may ask journalists to send us paraphrased versions of our quotes to check them for accuracy before the publication of any article, though we recognize that some journalists might not be willing to do so.

Training, mentorship, and recommendation letters

- Supporting training and career progression is one of the lab's priorities.
- I am always happy to discuss your training needs and give career advice.
- I have collated some career resources here, but also recommend you also contact My Career Service at UEA.
- There are many courses and training opportunities at UEA and externally that you can attend and funding for this is sometimes available at UEA (e.g., RSTG) or externally.
- There are MSc., 1+3 (MSc + PhD), 3-year PhD and post-doc funding opportunities you can apply for at UEA and externally. I am always happy to discuss this with you.
- **Recommendation letters** can be requested but please include your latest CV and job add or award details to help me draft the letter. The request and materials should be sent at least **2 weeks before deadline**.
- I view mentorship as a life-long relationship, and I will always be there to help you, even long after you have left the lab – from letters of recommendation to career mentorship. **I like to think we belong to a Neurolab family**!

Fig.4. *Photo of some lab members at Experimental Psychology Society meeting at the University of Stirling, July 2022 (left to right: Helen Morse, Annie Warman, Stéphanie Rossit & Hannah Browning)*