How to write a grant: for Vision Scientists

There are many stages to the grant writing process, the first being to develop your ideas into a cogent body of research that is novel, exciting and doable, and that your expert peers will find clear and exciting enough to support in their review. This document will mostly give tips on other aspects of the grant writing process, which are equally important, but can often be missed.

General preparedness
If you are new to grant writing (or even if you are not) take steps to make yourself generally ready for the job. From time to time funders offer workshops, training courses, or mock panel sessions either nationally or to specific institutions. Sign up for these: they give valuable foresight into what the funder is looking for (or may look for in the future) and into how the process works.

Who should fund it
Vision science sits at the border between many different funders and can be difficult to classify. Many see this as a disadvantage, but it can be turned to our advantage if we think carefully about the utility and interest of our work outside our own field. Choose your funder based on the way you will argue your project. For example, if there is a potential technical innovation or application, EPSRC may be appropriate. If you are studying phenomena that are closely associated with neural mechanisms (maybe using psychophysical or computational techniques), BBSRC may be appropriate.

Once the decision has been made where to send it, read all the instructions. Then read them again: a large proportion of proposals are still rejected at the earliest stages due to not following instructions. If you know of colleagues who have had recent success, ask if you may see their proposal, or part of it (this is particularly helpful for tricky sections like current requirements to discuss non-academic impact and activity).

Who is the audience for a grant?
Any piece of writing should be aimed at an audience. Your task here is to write for two audiences: the expert reviewers (their expertise will depend on the funder, who you nominate, and luck) and the panel. The details of the science case must be clear enough, and interesting enough to please the reviewers. Do not go into the grant writing process assuming that our area is best because it is, and assuming that just because the work is good, or even brilliant, the reviewer will know that. It is your job to persuade them. Remember that reviewers are giving up their time to serve the community. Make their job easier by being as clear and as interesting as possible. Download reviewer forms if available to find out what they will be asked to comment on, and make sure you have given a clear steer to help them with this task.

Many funding bodies ask you to nominate potential reviewers. Before you do so, it is sensible to email the potential reviewer, asking them if they would agree to review the proposal. If they are likely to be too busy, or uninterested, it is useful to know that in advance, so that other reviewers can be suggested. Pick reviewers who have shown a positive interest in your past work at conferences or who you know have given good reviews of journal submissions. Don't pick someone on the grounds that they are the best in the field. Panellists will not know this and the

reviewer may be too busy. Be careful with inexperienced or international reviewers; they may not know how the system works. That is not a reason not to recommend them, instead it is a reason to make sure that they are familiar with grant reviewing in the UK - so send them a copy of the partner document "How to Review a Grant".

Just as important, is the panel who will rank-order the grants. Many funders have rather generic grant funding panels. For example, ICT at EPSRC conducts panels comprised of scientists right across the ICT remit (from photonics, through theory of computation, to human computer interaction and vision). As of summer 2011, grants submitted to BBSRC are still potentially 'in-remit' for panel A: Animal Disease, Health and Welfare, with panel members from related disciplines of animal vision and neuroscience. Panel members speaking on your grants are therefore unlikely to be vision experts. The 'summary', 'objectives' and other short sections on the proposal may be all a panel member will read. Do not consider these sections as of low importance, nor leave until the last minute to consider. Panel members may also read the first page or two of the Case for Support. You should explain why your project is of general interest and excitement in these sections in a way that cuts through jargon. Panel members will likely not be vision scientists (if you're lucky, there might be one who is). The individuals who are asked to speak on your grant may come from a close research area, but they will not know enough to explain the importance and excitement. If it is exciting (and if its not, don't write the application in the first place), it is your job to explain why, giving broader significance and context if appropriate.

Put yourself in the position of a panel member: they may have 80 grants to read. Explain to them concisely why yours in exciting and interesting and should be funded above grants in other areas.

How does your work fit the funder remit?
Funding body strategy and delivery plans are constantly changing (especially the Research Councils in the current climate). Make yourself aware of current strategies and directions (read the web sites in detail). You can help the reviewers and panel understand how and why your work fits the remit by saying so explicitly: make their work easier. Be clear about how the project being reviewed fits into that bigger picture. If we can't represent our area of science to other scientists and display its value and importance, then why should our area be supported? Further, the first hurdle is to get the grant passed as 'fitting the remit'. This is usually done by a panel manager. They are usually trained scientists, but will not be from our field. They look for whether the grant fits the remit, so make sure it does. Most funders offer a remit checking service based on a short summary and there is no harm in contacting a portfolio manager for remit advice. Do this before you start to write in earnest.

How do you know when your grant is ready to submit?
Always, always, ask a number of people to read it. Start with experts in your own field, and ask if the science is clearly specified and doable, and if not , what needs to be tightened up. Even more importantly, ask non-experts to read the grant. Expect that they will read the short sections, and perhaps the background and aims, but no more (they are your surrogate panel members). Ask them to point out if the science does not seem exciting, if there are places where the general importance can be improved, if there is jargon that is uniterpretable. And prepare to be roundly critisised: it is much better to hear this before submission, while there is time to

change the proposal, than hearing it from a reviewer or via a panel decision. Most importantly, act on the questions and criticisms, use the critique to make the grant better.

How to respond to reviewers' comments.
Most funders will give you the opportunity to respond to reviewers comments, but will only allow a couple of pages at most for this, and will very often send the comments to you at very short notice. Always reply to reviewers' comments even if they are glowing (thank the reviewers and note to the panellists just how glowing the reviews are). If you have mixed reviews open with a comment that highlights the good reviews. Consider if it is possible to trade reviews against each other cancelling bad points in one review with a good point from another. Answer each criticism succinctly and as completely as possible. Make each of your replies positive. There is an opportunity here to show that you really do know your stuff. However, don't use this reply stage as an opportunity to extend the case. Panellists (especially for EPSRC) are asked to say if the author has adequately dealt with the reviewer's comments. The project *should* be dear to your heart but try to remain objective. Remember that the panellists will know who the reviewers are – so be circumspect. Indeed, it is possible that a reviewer will also be on the panel and so will see your reply.

How do you deal with failure?
Even the most prolific researchers and grant-getters don't always get their grants. Even when a grant contains superb original and exciting science, it can fall due to bad luck with reviewers, who may be hostile to the ideas, or simply misunderstand the proposal. Everyone fails. Try not to let it get you down. There is only one solution to this problem: "try and try again", but get advice each time you fail. Ask the funder for feedback. Ask a new set of colleagues to suggest what might have gone wrong, using any published reviewer comments as an aid.

An informal survey, with a rather small sample size, of 'big grant getters', suggests to us that such people spend 20-30% of their time working on grant proposals. Make it a regular part of your professional life.

Other useful tips and advice:

Tips on EPSRC (from Edinburgh):
http://homepages.inf.ed.ac.uk/bundy/how-tos/rsg-how-to-get-funding.html

ESRC:
http://www.esrc.ac.uk/funding-and-guidance/guidance/applicants/how-to.aspx