Tips for a successful Discovery Grant Application

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Three components

- Excellence of the researcher
- Merit of the proposal
- Training of Highly Qualified Personnel (HQP)
- All equally weighted
Overview of review process

• Each grant is assigned to one Evaluation Group (EG), based on researcher preference as well as subject

• The need for joint reviews is determined

• 5 members are assigned for the grant: first internal, second internal, 3 readers

• First internal is always from the EG, others may be from other EGs, if needed

• External reviews are solicited by first internal

• Reviews are typically received in January-February (between 0-5 per grant)
Overview of review process (2)

• Each grant is rated in the 3 categories

• For each category there are 6 ratings: Exceptional, Outstanding, Very Strong, Strong, Moderate, Insufficient

• Exceptional and Insufficient ratings are very rare

• Grants are placed into “bins” (Eg. bin A is EEE, bin J is SSS etc)

• The amount for each bin is determined later by the executive committee of the EG
Overview of review process (3)

- EG members receive their grants in early December (about 30-40 grants per member, about 10 as first reader)
- During competition week, each grant has a 15 minutes allotted for its discussion
- First internal summarizes the information (5 min), second internal adds to that, others contribute as needed
- Members vote, and the median of the scores is assigned in each category
- Usually there is very good agreement between the scores
- Grants can be flagged for further discussion if needed
The onus is on the applicant to write a clear, easy to understand grant and convince the EG of its merits.
Excellence of the researcher

• Quality matters more than quantity!

• List of publications: make sure it is clear which venues are highly refereed - impactful

• It is good to have a mix of specialized (but good quality) venues and ones that reach a broader audience; use the “Other” box if needed to explain publication choices

• For the submitted contributions, pick papers of good quality and papers tied to your proposal
Excellence of the researcher (2)

- Five most important contributions: this is a place to emphasize important achievements beyond the 6-year window, but which still have impact.
  - Eg: papers with a lot of citations
  - Eg: transfer to industry, patents
  - Talks, editorships, organization of meetings, program committees all viewed as indicators of standing in the community.
Merit of the proposal

• Discovery grants fund programs of research, not projects!

• Be bold, start with your research vision

• Break this down into shorter and longer-term steps that are feasible

• It is best if the proposal is aligned with your area of expertise

• Both experts and people with general knowledge in your field have to find the proposal interesting and understandable
Merit of the proposal (2)

• It is best if the proposal is focused on one topic or a set of related topics, even if your research is broader

• Make sure you state short and long-term objectives clearly, have related literature review and explain the methodology

• Methodology should be achievable given your expertise and resources

• The grants are individual!
Inter-disciplinary research

- Will be assigned to a main EG based on applicant preference and discussion among EG chairs and NSERC staff.
- Extra expertise from other EGs can be requested if deemed necessary.
- Common pairing in CS include math, ECE, biology, psychology.
- An interdisciplinary proposal is judged by same criteria, so being clear to both audiences is crucial.
Interdisciplinary research

• NSERC Discovery funds research in natural sciences and engineering

• The proposal has to innovate in this area!

• For interdisciplinary research, make sure you have a strong record of publication and training in NSE

• “Methodology” development would go to NSERC, “application” to other agencies
Budget

• NSERC can give you at most what you ask for, so ask for enough!

• Budget justification needs to be tied to the proposal, and make sense in the context of the proposal

• Use the “Relationship to other sources of funding” to highlight other cool research you do (which otherwise would not be reflected in the proposal)
Other sources of funding

• NSERC DG is a grant in aid which means you are expected to have other sources of funding too.

• Emphasize how the funding is complementary to the DG project.

• Eg you might have another grant that studies an application of X class of methods, and in your DG you want to study X theoretically, expand it…

• Include funding held and applied for.
Training of HQP

• Make sure you list all categories of students and trainees!
• Not just PhDs and postdocs, but also MSc, BSc
• Collaboration within the group is well viewed
• Get permission from your students to list their names and their position after graduation
Training of HQP (2)

• Highlight in the list of publications the names of the students (with a *)

• Make sure you note if students have received fellowships/awards

• List other mentoring activities
Training plan is crucial!

• No training plan for established researchers is automatically below strong

• Explain in the proposal which parts will be done by what students

• Explain how you train your students: group meetings, reading groups, working together, encouraging internships...
Early-career researchers (ECR)

- Early-career researchers typically do not have a training record, so if they have a good training plan, they will receive a Moderate rating in the HQP category.

- To compensate, they get funded one bin lower than established researchers, and they get an extra funding increment above their bin value.

- Acceptance rate ends up higher for ECRs.

- Previous record of co-supervision (e.g., with postdoc supervisor) should be well explained.
Early-career researchers (ECR)

- Remember the proposal is about you long-term research vision!
- It also needs to outline some concrete steps
- Emphasizing your own ideas/contributions in prior work is important
Resubmissions

- Chances are there will be overlap in EG members assigned to the proposal, so comments made MUST be addressed.
- However, proposals are judged from scratch every time.
- Make sure you explain any special circumstances that might affect productivity.
Final tips

• Get your proposal proof-read by colleagues!

• Take time to polish the writing on the proposal itself

• Make sure you include activities that show your stature in the community

• Spend time on HQP!

• Integrate the different parts of the proposal