

Research Topic Formulation

Research topics are meant to encompass the majority or entirety of our work during our graduate career and, when well-defined, can result in opportunities to publish several high-impact academic papers. The effort required to formulate a well-defined research topic is significant, but necessary to avoid running into unforeseen challenges during your PhD.

The following table can be used as a systematic approach to research topic formulation. The first column lists research fields you find interesting. The second column lists ideas that align with your personal motivations for pursuing a career in STEM research. The third column lists specific fields your research must overlap with based on your funding source. Example entries are included in the first row. Take time to fill out as many of the empty cells as you can and feel free to add more!

Technical areas you find interesting	Personal motivations for pursuing research	Funding organization priorities
Remote sensing	Enabling efficient natural disaster response for remote communities	Effects of the space environment on satellite operations

To communicate what you're proposing to do, how you'll do it, and which constraints or assumptions you'll be working under in a clear and concise research statement, use the following format:

To...(what you'll do)...**by**...(how you'll do it)...**while**...(constraints / assumptions you'll consider).

An example research statement using the entries from the first row of the table above would be:

To enable efficient natural disaster response for remote communities **by** developing rapid response scheduling algorithms for remote sensing satellites **while** accounting for limitations to satellite operations imposed by the space environment.

Write your own draft research statement using your entries from the table above:

To

By

While

Iterate on your research statement as you delve deeper into the relevant literature.

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