Where our data was found:

* Worldcat
* Google Scholar
* AIAA Aerospace Research General
* <https://amfg.ai/industrial-applications-of-3d-printing-the-ultimate-guide/>

Our high-level research goals:

1. Provide evidence that **composite, conformal 3d print testing and research is scarce**
2. Provide data/evidence for supporting why reparative 3d printing is useful
   1. Case studies in which it is more useful to repair the 3d printed part than to re-print
      1. E.g. Gears, airplane wings, gaskets, etc.
   2. Case studies (or lack thereof) of different loading patterns made possible by conformal printing
3. Provide data supporting a hypothesis behind our experiments:
   1. Printing at different infills
   2. Printing different materials
      1. Different composites
   3. Printing different interfaces
      1. E.g. Staircase on conformal
4. Exemplify what methods of statistical data analysis is necessary
   1. What types of graphs/plots/distributions will help compare our data
   2. Studies on mechanical properties of PLA in bend tests
5. Societal impact/do good appeal
6. Images of damage done to common 3-d printed parts
7. Images or Computer Aided Design files from research done on reparative 3-d printing displaying what they actually were repairing

Summary of Research:

* [Sample spec research](https://docs.google.com/document/d/1Fiw6xUX5_dXtZuK3D1_bpZxdkaeraaCmwixL32HDhRk/edit) (should addresses goal 2)
* [Experiment design research](https://docs.google.com/document/d/1tkUu6BC7WTH8iazcYznlkhzJLjaPotmTzqhCduNuqqg/edit) (and [here](https://docs.google.com/document/d/11xPw-ck605zh3kKcvxP49hLBBtYxdCk_ILX4yLdP4Cc/edit)) (should address point 3,4)
* Validation testing
  + Starting with plastic and demonstrate for later tech
* Try using words that are not “conformal”
  + Airplane wing → air foil?
  + Movement of 3D printing → not just building from bottom up
  + “Conformal” OR “non-planar” → use caps for boolean operators
  + Some databases can take regex : \*
* Using advanced search on databases
  + Boolean operators
  + “Cited by” / ”related articles” function on Google Scholars
* <https://search.proquest.com/materialscienceengineering/docview/2262157681/abstract/F9A709A92A6F4D55PQ/4?accountid=14696>
* Materials Science & Engineering Database
  + <https://www.lib.umd.edu/dbfinder/id/UMD09172>
* Web of Science
  + <http://apps.webofknowledge.com/WOS_GeneralSearch_input.do?product=WOS&search_mode=GeneralSearch&SID=5F5yfTDjToydjbjsC6z&preferencesSaved=>
  + Only has peer reviewed papers
  + Can look at the categories that reference/are relevant to the topic
* No more literature
  + Make the claim based on the fact that what was found was published recently
  + “Here was the state of the research x years ago. It was such a new area even then that this is how the area is developing”
  + This is the current state because it only started developing x years ago

Try:

* Web of science
* Regex on Google Scholars
* Materials database
* Synonyms for non-planar
* Pay attention to authors
  + Click on authors and it will give you all their works

Shouldn’t have to spend more than a couple hours using specific searches

Societal impact:

* Medical applications (easiest)
  + 3D printing wounds
  + bioengineering
* Healthcare
  + Reduce hospital stay times
  + Fasten ER
  + 3rd world nation
  + **Cost (reduce in any way)**
* Education?
* Infrastructure?
  + Moving people around

**Emphasize the Equity to win Do Good!!!!**

* Formulate a few pages to send to Dr.Over for a look-over