Identify, analyze and synthesize modern efforts into structured prediction for a single task, or a significant, relevant aspect of that task. This task may be related to (or identical to) your project, however it does not have to be. For example, if for your project you are studying sarcasm detection in social media, your paper may be about: (i) structured prediction for sarcasm detection (in any media); (ii) structured prediction for social media (text) analysis; (iii) structured prediction for a task unrelated to sarcasm detection or social media analysis, such as syntactic parsing of biomedical texts.\footnote{Note that (i) is structured prediction for the task (your project), (ii) is structured prediction for a relevant aspect (being able to analyze one aspect of social media text may be helpful or inspirational for analyzing another), and (iii) is structured prediction for some other other (not your project).}

Roughly, structured prediction is any task that given an input, produces some object or label with an internal structure. This is in contrast to prediction tasks that simply predict a single, “flat” label, without any decomposable or interspective structure. We’ve already covered in depth two instances of structured prediction—machine translation/alignment and part of speech tagging—and we’ll see more as we get further along in the semester. Canonical examples of structured prediction problems include, but are not limited to: (a) syntactic parsing (constituency or dependency); (b) machine translation; (c) semantic parsing (including FrameNet, PropBank, AMR, and VerbNet parsing); (d) structured information extraction (such as template-based slot filling as in the ACE Relation Extraction task); (e) ontology induction; (f) entity coreference or cross-document entity linking; and (g) summarization. Generally, “bags-of-items” models do not arise in structured prediction tasks. Tasks like question answering, recognizing/determining textual entailment, and sentiment analysis may or may not involve structured prediction.\footnote{Although sentiment analysis often asks for a single label at the end, the internal classification may operate over structures. That is, the final flat label may be the result of some internal, latent structured prediction.}

Your paper is not restricted to the preceding items; they are offered as suggestions.

Identify For this assignment you will need to find an appropriate number of papers to discuss in detail. Though the final number that you select is highly dependent on, among other things, which topics you choose, the length of the papers, and their venues, a reasonable number of papers is between five and ten. This range does not constitute required minimums or maximums.

You may read many more papers than you discuss in detail. Do not view this as “wasted” effort—these should help inform the overall narrative and context for your discussion.
Analyze  Ask and answer fundamental research questions: what were the goals of each of the papers? What scientific and engineering questions did each of the tackle? How well did the evaluations support the main claims? What was not done that could have been done?

Synthesize  How do the efforts relate to one another? Do they follow one after another, making (incremental) progress on a task (metric)? Does one question some basic assumptions of another, and if so, how do the other papers fit in? What are the limitations of these approaches, and what still remains to be done? You can also link these papers and ideas to related fields.

Requirements  Papers should be four pages, not including references, in the ACL format. Please use the ACL 2017 style guide; both \LaTeX{} and Microsoft Word (docx) versions are on GL:

\url{http://afs.umbc.edu/users/f/e/ferraro/pub/sty/acl17-latex/acl2017.sty}
\url{http://afs.umbc.edu/users/f/e/ferraro/pub/sty/acl17-word/acl17-word.docx}

Be sure to cite appropriately and follow all academic honesty standards. You may include figures (your own, reproductions, or copies of existing figures); be sure to provide appropriate credit for the figures. However, make the figures count: do not include them simply to pad the paper. Do not consider just “recent” papers; try to find papers from the past 25 years.

Where to Start  You may analyze any papers read in class or as part of the assignments.

Google Scholar is an easy way to find linked and cited papers. Another great resource is the ACL Anthology (http://aclanthology.info/) archives papers by conferences (e.g.,ACL, EACL, NAACL, NAACL), journals (CL, TACL), and workshops by year. It also offers multiple custom searches.

The AAAI digital library also offers an extensive listing of AI-based conferences and proceedings. Of particular relevance are the flagship AAAI, ICML (International Conference on Machine Learning), and KDD (Knowledge Discovery and Data Mining) proceedings. Papers from NIPS (Neural Information Processing Systems) often tend to the more theoretical, but with a decided focus on neural networks.

This paper provides you immense leeway to relate current NLP methods to areas or topics you are interested in. Workshops often offer targeted application and interest areas. There are also special interest groups, which you can find on the main ACL Anthology page. For instance, are you interested in NLP for the humanities, Semitic languages or biomedical applications?

You are welcome and encouraged to come talk with me, either during office hours, over email, or by appointment to discuss topics, advice on finding relevant papers, and the direction of your paper.

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3 Paper ids generally have the form XYY-ZZZZ, where X is a single letter identifier (P is the main ACL, D is for EMNLP, Q is for TACL, etc.), YY are the final two digits of the year (2017 → 17), and ZZZZ is a per-proceedings identifier.