

Project Report

The final report for your project is designed to give you practice writing your results in a format suitable for academic publication. Typical academic papers contain the following components:

- Title, author name, author affiliation, date.
- Abstract: summarizes your problem and your solution in 100–200 words.
- Introduction: Motivation of your problem, starting from a broad level and narrowing to your particular problem. Brief description of the specific problem you will solve, how you will solve it, and your results (in some sense, this is an outline of the paper).
- Background and related work: Discusses previous results in this and other fields, and how they relate to the results in this paper.
- Problem formulation: Describes the problem in detail, generally introducing a mathematical description of the problem. It will also generally give some description of how you will judge the quality of your solution.
- Solution Methodology: This section (may be more than one) describes how to solve the problem. In theoretical papers, you will prove here that you solved the problem, and (when possible) analyze the quality of the solution.
- Results: This section typically includes examples of the problem and their solution. In empirical papers (eg: papers that are not theoretical) you will demonstrate here that you solved the problem, and analyze the quality of the solution.
- Conclusions and future work: What still needs to be done?

You are not required to produce publishable work in one month, but this process should give you a good start. Length is not a primary concern, but the final reports will probably be 7–12 pages including figures. Keep in mind that your project report should emphasize the *dynamic programming* aspect of your problem and/or solution—for the purpose of this course, I do not care about the technical merit of your approach in any other field. If you find that you have too much material, then cut down on the application details to focus on the dynamic programming.

Here are a few examples of short papers that I think are pretty well written:

- Mitchell and Tomlin, “Level Set Methods for Computation in Hybrid Systems” in Proceedings of Hybrid Systems Computation and Control 2000, Springer LNCS 1790, pp.310–323 (2000).
- Foster and Fedkiw, “Practical Animation of Liquids” in Siggraph 2001, pp.15–22.
- Sethian, “A Fast Marching Level Set Method for Monotonically Advancing Fronts” in Proceedings National Academy Sciences, v.93, pp.1591–1595 (1996).

You may use whatever document production system you prefer, but please submit your reports in pdf format. I personally prefer to use L^AT_EX, which is available on the departmental computer system or as the free “MiKTeX” package for Windows machines.