### **Project Information**

The project aims to give you hands-on experience in solving a real-world problem with AI-related knowledge and skills. In general, you will go through the following process.

* Pick an application domain that interests you.
* Identify a problem in that application domain.
  + Any topic related to AI is fine. You are welcome to make up a new project as well as to extend your previous project.
* Make a solution to the problem, leveraging the knowledge learned from this class or new artificial intelligence techniques.
* Build a system that can demonstrate that your solution can (potentially) solve the problem.
* You will work in a team with 4-5 students.

There are two parts to the project: the proposal (*i.e.*, midterm report) and the final report.

#### **Proposal**

The proposal is due by March 28, 2023. It should be at most **two** pages and contain the following information. References do not count for the length limit.

* Names of team members
* What is the application domain
* What is the problem you plan to tackle
* Cite 6-10 papers that you plan to survey concerning this problem
* What (artificial intelligence) techniques do you plan to develop or analyze

The proposal should be submitted via Canvas.

#### **Final Report**

The final report is due on the last day of the final exam period (May 16, 2023). Unlike homework and the midterm report, we will not accept delayed submissions. It should be at most **six** pages long and explain the big picture and any necessary detail. The final report should be submitted via Canvas. You are not required to submit the codes for the project, but they should be available upon request from the instructors and TAs.

#### Suggested Structure for the Report

* Introduction
  + What is the application domain?
  + What is the problem?
* Techniques to tackle the problem
  + Comparison: advantages/disadvantages, scalability, ease of use, etc
  + Brief survey of previous work concerning this problem (*i.e.*, the 6-10 papers that your read)
  + Brief description of any other relevant techniques
  + Analysis of techniques
* Implementation details of your system
* Report on your empirical evaluation with your system
* Conclusion
  + What is the best technique?
  + Can we solve the problem today?
  + What future research do you recommend?

#### **Format**

Use the Association for the Advancement of Artificial Intelligence (AAAI) format. The sample documents are available in the AAAI website ([https://www.aaai.org/Publications/Templates/AuthorKit23.zip)](https://www.aaai.org/Publications/Templates/AuthorKit23.zip)

[Links to an external site.](https://www.aaai.org/Publications/Templates/AuthorKit23.zip)

or Overleaf (<https://www.overleaf.com/latex/templates/aaai-press-latex-template/jymjdgdpdmxp>

[Links to an external site.](https://www.overleaf.com/latex/templates/aaai-press-latex-template/jymjdgdpdmxp)

). These will produce a 2 column report. Your report should be no more than six pages long. The references do not count for the length limit.

#### **Resources**

Many of the AI conferences and journals post their proceedings online so that they are accessible for everyone (and the few that do not will be accessible if you are on campus or using the library proxy). Some resources that you might find useful include

* Association for the Advancement of Artificial Intelligence (AAAI)
* International Joint Conference on Artificial Intelligence (IJCAI)
* NIPS
* International Conference on Machine Learning (ICML)
* International Conference on Autonomous Agents and Multiagent Systems
* Association for Computational Linguistics
* ACM Special Interest Group on Artificial Intelligence (SIGAI)
* Journal of Artificial Intelligence Research
* Artificial Intelligence (journal)

Note that this list is far from complete, and there are many other relevant conferences and journals that you can consult.

#### **Questions**

If you have any questions or are stuck on a project idea, then don't hesitate to get in touch with the instructors. We love chatting about research ideas.