**CDS Project Proposal Template**

Students, fellows and research engineers at NYU CDS are actively engaged in research. And, at any given time, a large number of highly skilled data scientists in training are looking for new research opportunities and external projects. In particular, all master's students (and many CDS faculty) participate in the Senior Capstone at CDS (carried out in the final year of the NYU CDS Masters in Data Science program). These projects involve groups of roughly 2-4 students working in partnership with outside organizations that have provided real problems that can be solved via applications of data science. The outcome is a win-win: the students get the opportunity to work in their field of interest and gain exposure, while the partners receive the benefit of having a new perspective applied to their projects.

To help guide your answers and selection of problems/ projects we have compiled a list of the skills that our students are trained in:

* Probability and statistical analysis.
* Natural language processing.
* Big Data analysis and modeling.
* Machine learning and computational statistics.
* Coding and software engineering.
* Data visualization and visual analytics.
* Neural networks.
* Signal processing.
* High dimensional statistics.

We ask that all academic and industry partners help us to specify projects using the template below. This allows us to more effectively find the right people within the CDS student and faculty community to carry out, mentor, and evaluate each project. Responses to each of the questions will help CDS faculty, students and staff build effective engaged teams to tackle your problems. Answers to each point below are required but can be very brief (a few sentence answer to each point below is all that is required in most cases).

**What is the project?**

The projects that organizations provide to our students needs to be engaging and relevant and well posed (that is, of proper scope). The NYU CDS community includes individuals from many different industries and disciplines; therefore, we will be searching for a number of data science projects/ problems that our students can tackle. We hope to gather a diverse set of problems that address different subject matter and technical requirements.

**What does the data look like?**

A detailed description of the type of data that is required to address the problem. For example, will the students primarily be working with data aggregated from twitter feeds or other social networks, is it medical data, biological data, or financial data? Along with detailed information on the type of data there should also be context regarding where the data can be found. Will the organization provide the majority of the data? Is the data accessible via other avenues/ sources? Is an NDA required? How much of the data is available? Do the students need to gather data, model data, both, or neither?

**What is the proposed scope of the project ?**

Is this a project for 1, 2 or 4 people? Is this a smaller well-delimited problem or the next step in addressing a grand challenge in your field? How many hours of work are anticipated for completion of the project?

**What are the rubrics of success?**

The Center for Data Science will be grading all of the final projects. In order to do this, we will need information from the stakeholders around what progress/ success would look like. For example, is progress classified as the creation of an algorithm that improves upon the current process? Each problem must be accompanied by a detailed description of the rubrics of success.

In other words, how will this project be judged and graded? What are the quantitative and qualitative metrics that can be used as metrics for successful completion of the capstone project. Since each problem would ideally propose a different set of solutions, these rubrics must be specific to each individual problem.

**What is the relevant background needed with respect to the project?**

Please provide information on the relevant background information that someone working on the project should have. In any format most convenient and expedient, such as: citations, outside links or text.

**What is the relevant organizational, project or institutional history ?**

Each company, organization or group should provide a brief description of their history and what it is that they do more broadly. This context will allow us to match students with outside organizations that are relevant to their specific long term interests.

**How will the organization support and mentor the students?**

One of the most beneficial aspects of the senior capstone is the opportunity for students to work with professionals across different industries. Each organization must commit to providing mentorship to the students so that they can receive real time feedback and guidance from the organizations they are working with. While there will be in-house staff working on this project, including one outreach program manager and an academic fellow, we want everyone proposing a project to specify who will work with the students from their end to guide and evaluate the project. Ideally this contact would also be available to assist in the review process once the project is completed in order to help our faculty asses the metrics of success. Who will work with the student or CDS project team? What are their qualifications or training? What amount of time per week do they intend to devote to working with the project team?

**Feedback**

We ask that you also provide feedback on this template and the Senior Capstone project so that CDS can improve this course every year. Please feel free to send any feedback and your responses to this template to Andres Borray at ab4829@nyu.edu.