Project Proposal Guidelines

The goal of the project proposal is to help students develop an idea that leverages machine learning to engage civically with climate justice issues. So far the ML4CJ research is extremely nascent, so this a rare opportunity to provide a space for students to learn in a low stakes setting. The project should focus on a topic with which the student is passionate. The project proposal should go beyond being technocractic and engage a sociotechnical framework (e.g., data feminism, roles for computing in social change, algorithmic reparation) in its formulation. Moreover, the project proposal should meaningfully contextualize the work beyond a simple literature review of previous work. For example, in the case of redlining, what historical factors besides redlining could contribute to intra-urban heat disparities (e.g., industrial zoning in low-income neighborhoods)? This interdisciplinary thinking involves creativity, non-linear ideation, and casting a wide net. To top it off, students should describe a clear path to policy or other impact. Often students might feel like they cannot meaningfully contribute to change, but it is important for students to understand that they have a policy and community engagement toolbox at their disposal.

A research paper is usually divided into several core sections: introduction, methods, results, discussion, and conclusion. Since this is a proposal, we will not have results. An introduction should motivate a problem, identify gaps in existing research, and briefly state the premise of your research. A method section should outline the approach to the problem, including the data and analysis. A discussion section will include strengths and limitations of the outlined approach. You can explore further resources through the MIT CommKit. We present the rubric below.

	Exceeds	**Meets**	**Does Not Meet**
Problem Formulation (Introduction)	Crafts a clear, scoped research question related to climate justice. Motivation is guided by real problems plaguing frontline communities. The proposed problem is extremely novel in a nascent research area *or* the proposed problem answers a novel question in an established research area.	Crafts a research question that may not be clear or properly scoped. Motivation may not be aligned to problems facing communities. The proposed problem is an incremental improvement in an established research area.	Does not craft a research question. Motivation does not address issues facing communities. The proposed problem is not novel in any meaningful way.
Contextualization (Introduction)	The project proposal thoughtfully contextualizes the work along the lines of	The project proposal makes some attempt to contextualize the work along the lines of	The project proposal makes no attempt to contextualize the work along the lines of

	social, historical, and other factors.	social, historical, and other factors.	social, historical, and other factors.
Sociotechnical Appreciation (Introduction)	The project proposal meaningfully integrates a sociotechnical framework from the course (data feminism, roles for computing in social change) or some other framework (e.g., algorithmic reparations, interventions over predictions).	The project proposal somewhat integrates a sociotechnical framework from the course (data feminism, roles for computing in social change) or some other framework (e.g., algorithmic reparations, interventions over predictions).	The project proposal does not integrate a sociotechnical approach.
Data Curation (Methods)	The dataset is suitable to answer the proposed research questions.	The dataset may not be suitable to answer the proposed research questions. It would only be clear if the dataset is appropriate with preliminary results.	The dataset is not suitable to answer the proposed question.
Data Exploration (Methods)	Data exploration provides meaningful insight into the data that could inform modeling and future directions.	Data exploration is anemic.	Data exploration is not conducted.
Modeling (Methods)	The proposed model makes sense. Proposed modeling includes hyper parameter tuning unless provides a theoretical or empirical justification otherwise, presents model performance using at least two metrics.	The proposed modeling is still in the process of being shaped, but there is some discussion about what it could look like.	There are no proposed models, but there is no justification given for why modeling may not be appropriate for the problem or context.
Model Interpretation (Methods)	The proposal has a plan for relating model outputs to societal and broader questions. relates model outputs to societal and broader	Proposed model interpretation is not carefully considered. The proposed model interpretation does not go beyond feature importance.	There is no proposed model interpretation.

	questions. The proposal acknowledges the limitations of what information the model outputs could provide for the context. Proposed model interpretation goes beyond simply feature importance.		
Strengths and Limitations (Discussion)	The project proposal thoughtfully articulates the strengths and limitations of the study from an interdisciplinary perspective.	The project proposal articulates some strengths and limitations, but the discussion is not insightful.	The project proposal does not articulate strengths and limitations.
Evidence Based Policy Proposal (Discussion)	The project identifies the relevant stakeholders and discusses how they plan to share results with them. The project presents a clear plan to bridge research to engagement.	The project generically discusses engaging stakeholders within or about the research.	The project does not propose any stakeholder engagement.