

Career Foundry Data Analytics Program

Machine Learning Specialization

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PART 1

When dealing with climate change data, several ethical concerns and potential biases must be addressed by organizations like *ClimateWins*. First, while climate change data itself may not directly involve personal information, there is a risk of unintended exposure if datasets are linked with socioeconomic or demographic data. This could lead to privacy concerns, especially if regional populations are unfairly scrutinized based on their exposure to climate risks.

Furthermore, machine learning models could exacerbate **regional or cultural biases**. For instance, data from more developed regions with better monitoring systems may be overrepresented in the training data, while underdeveloped areas might be underrepresented. This could lead to biased predictions that disproportionately affect marginalized regions, potentially missing areas where climate change impacts may be severe but less documented.

Human bias may also enter the process, especially in how training data is selected and how climate risk models are interpreted. For example, historical climate data may reflect biases in how scientists and policymakers previously understood climate issues, leading machine learning models to perpetuate those inaccuracies. Additionally, models could make incorrect predictions about which regions will experience severe weather conditions, potentially leading to improper resource allocation and harm to communities that were inaccurately assessed as low risk.

Ultimately, *ClimateWins* must carefully consider these risks, ensuring that machine learning models are trained on balanced, comprehensive datasets and that outputs are thoroughly reviewed by experts to mitigate biased or harmful conclusions.

Sources:

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3. O'Neil, C. (2016). *Weapons of Math Destruction*.