Detecting, Dismantling, and Defeating Environmental Racism Through the Lens of Urban Flooding

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The practice of redlining, which gave rise to the racial segregation of American cities, has significantly contributed to the structural, institutional, and systemic racism apparent in today's society. Importantly, remote sensing of environmental variables can be utilized in conjunction with redlining data to both powerfully and accurately discern the effect of these historical policies on present day climate inequities. Previous research using remote sensing has already revealed a strong link between redlined neighborhoods and higher land surface temperatures. In an effort to obtain a more comprehensive understanding of environmental racism, my study extends the scope of inquiry to consider the varying degrees of exposure to flooding in formerly redlined neighborhoods throughout New York City. My results reveal that areas across the five boroughs considered to be "hazardous," the lowest redlining grade, were around twice as likely to experience flooding than areas considered to be "best," the highest redlining grade. In addition to developing an algorithm that uses geospatial data from satellites to instantaneously map urban flooding, my research communicates further quantifiable evidence of environmental racism. With these valuable conclusions, city officials and local organizations can work together in order to develop the best path forward for equitable adaptation strategies when considering future planning for climate resiliency.

Awards Won:
Fourth Award of $500