



2021 NSF CYBER-PHYSICAL SYSTEMS PRINCIPAL INVESTIGATORS' MEETING



SONYC: A Cyber-Physical System for Monitoring, Analysis and Mitigation of Urban Noise Pollution

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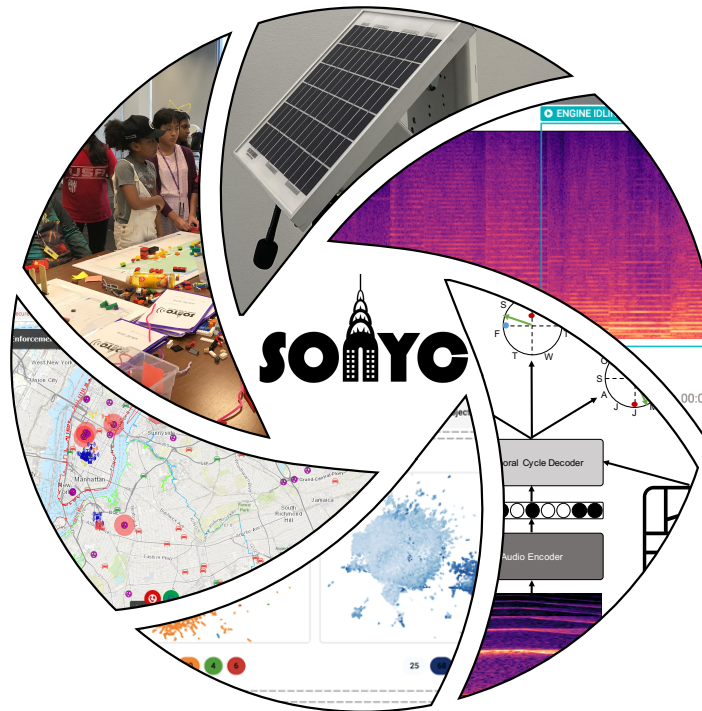
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Challenge:

In the U.S: ~70-100M people exposed to harmful levels of noise
Lack of direct, persistent, unbiased noise measurements at scale

Solution:

1. Urban IoT technologies for low-resource, citizen-centric acoustic sensing
2. Social computing methods for data interactions w/ citizens and citizen scientists
3. Self-supervised, few-shot and continual AI for sound analysis
4. Data mining + interactive visualization techniques



Scientific Impact:

SW platform for embedded sensor networks
Novel framework for human in the loop CPS
Classification w/ evolving vocabulary + limited data

Broader Impact:

Responsive mitigation with city agencies
Support community organizations on evidence-based advocacy
Support public health research
STEM workforce: K12 and university