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Applications of computational and statistical techniques in experimental climate physics

Friday, 21 June 2024 13:50 (20 minutes)

Computational and statistical techniques are imperative to experiments in physics. This presentation explores the potential applications of some computational methods. More specifically, I will focus on a recent ongoing project where we attempt to simulate the effect of cities on the surrounding environment mechanically, with the main aim being to study the extent of the effects of urban heat islands on surrounding temperature and how to limit such effects. As the project is still in its infancy where we do not have meaningful results, I will point out some places where computational and statistical techniques could be applied to further the project. Additionally, I will also mention some possibilities for similar pre-existing numerical simulations as future goals to complement our experiments[1]. This presentation will emphasise the importance of these mathematical techniques in these sorts of experiments in hopes to encourage the audience to get involved.

[1] K. Gunawardena, T. Kershaw, and K. Steemers, "Simulation pathway for estimating heat island influence on urban/suburban building space-conditioning loads and response to facade material changes," *Building and Environment*, vol. 150, pp. 195–205, Mar. 2019, doi: <https://doi.org/10.1016/j.buildenv.2019.01.006>.

Primary author: HUANG, Chi-Yu (Imperial College London)

Presenter: HUANG, Chi-Yu (Imperial College London)

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