

2023 DONNA J. BROGAN LECTURE IN BIostatISTICS



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**Personalized Treatment: Sounds
heavenly, but where on Earth did they find the right guinea pig for me?**

Are you kidding me? Surely no one should take *personalized* literally. Fair enough, but then how *un-personalized* is personalized? That is, how fuzzy should “me” become before there are enough qualified “me”s to serve as my guinea pigs? Wavelet-inspired Multi-resolution (MR) inference (Meng, 2014, *COPSS* 50th Anniversary Volume) allows us to theoretically frame such a question, where the primary resolution level defines the appropriate fuzziness - very much like identifying the best viewing resolution when taking a photo. Statistically, the search for the appropriate primary resolution level is a quest for a sensible bias-variance trade-off: estimating more precisely a less relevant treatment effect versus estimating less precisely but a more relevant treatment effect for “me.” Unexpectedly, the MR framework reveals a world without the bias-variance trade-off, where the personal outcome is governed deterministically by potentially infinitely many personal attributes. This world without variance apparently prefers overfitting in the lens of statistical prediction and estimation, a discovery that might provide a clue to some of the puzzling success of deep learning and the like (Li and Meng, 2020). A personal and painful story, together with a Simpson’s paradox from comparing kidney stone treatments, will be used to regale the audience.

**Thursday, April 20 2023
4:00 PM**

**Lawrence P. & Ann Estes Klamon Room
Rollins School of Public Health,
Claudia Nance Rollins Building, 8th Floor, Room 8030
1518 Clifton Road, N.E.**

(Reception immediately following the lecture)
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