



UNIVERSITY OF  
**GEORGIA**

Franklin College of  
Arts and Sciences

*Department of Statistics*



**Featuring Sujit Ghosh**

*Department of Statistics  
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## ***2026 UGA/Clemson Colloquium***

### ***Are We There Yet? A Probabilistic Journey to Global Optima***

**Abstract:**

Global optimization over non-convex landscapes is notoriously difficult—akin to a long road trip with no map, no gradients, and lots of local distractions. Traditional algorithms, including many metaheuristics, often struggle with high dimensionality, sensitivity to initial conditions, or inaccessibility of derivative information—frequently converging to suboptimal solutions (if at all). In this talk, I will introduce ProGO—a Probabilistic Global Optimizer designed to answer that age-old question: “Are we there yet?”—without needing gradients, perfect guesses, or a magic wand. Built on a sequence of multidimensional integrations, ProGO is backed by a solid convergence theory and mild assumptions (no deal-breakers here). The heart of our method lies in a latent slice sampler that zips toward nascent optima distributions with geometric speed—no stalling, no detours. Unlike many existing methods, ProGO scales gracefully with dimension and consistently finds the global optima across a wide range of challenging test functions. In empirical comparisons, it leaves gradient-based and many gradient-free optimizers in the dust—especially in terms of regret and convergence speed. One caveat: if your function takes a week to compute, we suggest packing snacks—ProGO’s strength is in smart sampling, not expensive function evaluations.

**Bio:**

Professor Sujit Ghosh is a tenured Professor in the Department of Statistics at North Carolina State University (NC State) in Raleigh, NC, USA. With over 30 years of experience, he is widely recognized for his methodological and collaborative research in statistical analysis of biomedical and environmental data. His expertise spans Bayesian methods, with a particular emphasis on Markov Chain Monte Carlo (MCMC) algorithms and shape-constrained estimation techniques. Professor Ghosh has supervised over 50 doctoral students and 5 post-doctoral fellows, receiving accolades such as the D.D. Mason Faculty Award (2023) and the Cavell Brownie Mentoring Award (2014) from the NC State Department of Statistics and Distinguished Alumni Award from his alma mater, UConn. He has served as a statistical investigator or consultant for over 45 research projects funded by leading private industries and federal agencies. He has authored more than 150 peer-reviewed publications in areas including biomedical sciences, environmental applications, econometrics, and engineering, and is the co-author of the widely used textbook *Bayesian Statistical Methods* (2019 1st. ed., 2025 2nd. ed.). His leadership roles include serving as Deputy Director of SAMS (2014–2017), interim Department Head of Statistics at NC State (2022–2023), and membership on advisory boards at CANSSI and NISS. In 2024, he was appointed to the Board of Trustees and Corporation of NISS by TUCASI and currently serves as a member-at-large on the CANSSI Board of Governors.