

# **Martingale Search Algorithm for Stochastic Optimization with Applications in Machine Learning**

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**Abstract:** Solving a stochastic optimization problem usually involves performing repeated noisy function evaluations at points encountered during the algorithm. Recently, an optimization framework for executing a single observation per search point was shown to exhibit a martingale property so that associated estimation errors are guaranteed to converge to zero. Using this martingale property in conjunction with the kernel estimation technique in statistics, one can construct a class of efficient stochastic optimization algorithms that provides an alternative framework for training a machine learning model.

**Bio:** Seksan Kiatsupaibul is an Associate Professor in the Department of Statistics at Chulalongkorn University, Bangkok, Thailand. His current research interests lie at the intersection of optimization and statistics. His area of application is in financial development. He currently serves as Program Director of the Master in Statistics program and also as Director of the Social Innovation Research Unit at Chulalongkorn University.