

Artificial Intelligence Enhanced by Physics

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Abstract. We propose that intelligently combining models from the domains of Artificial Intelligence or Machine Learning with Physical and Expert models will yield a more “trustworthy” model than any one model from a single domain, given a complex and narrow enough problem. Based on mean-variance portfolio theory and bias-variance trade-off analysis, we prove combining models from various domains produces a model that has lower risk, increasing user trust. We call such combined models - physics enhanced artificial intelligence (PEAI), and suggest use cases for PEA I

Key Words: Narrow Artificial Intelligence, Machine Learning, Portfolio Analysis, Risk Management, Design Optimization, Knowledge Fusion