

Novelty Assessment Report

Paper: Mean Estimation from Coarse Data: Characterizations and Efficient Algorithms

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Abstract

Coarse data arise when learners observe only partial information about samples; namely, a set containing the sample rather than its exact value. This occurs naturally through measurement rounding, sensor limitations, and lag in economic systems. We study Gaussian mean estimation from coarse data, where each true sample X is drawn from a D -dimensional Gaussian distribution with identity covariance, but is revealed only through the set of a partition containing X . When the coarse samples, roughly speaking, have "low" information, the mean cannot be uniquely recovered from observed samples (i.e., the problem is not identifiable). Recent work by Fotakis et al. (2021) established that sample-efficient mean estimation is possible when the unknown mean is identifiable and the partition consists of only convex sets. Moreover, they showed that without convexity, mean estimation becomes NP-hard. However, two fundamental questions remained open: 1. When is the mean identifiable under convex partitions? 2. Is computationally efficient estimation possible under identifiability and convex partitions?

This work resolves both questions. We provide a geometric characterization of when a convex partition is identifiable, showing it depends on whether the convex sets form "slabs" in a direction. Second, we give the first polynomial-time algorithm for finding ϵ -accurate estimates of the Gaussian mean given coarse samples from an unknown convex partition, matching the optimal $(d/\epsilon)^2$ sample complexity. Our results have direct applications to robust machine learning, particularly robustness to observation rounding. As a concrete example, we derive a sample- and computationally- efficient algorithm for linear regression with market friction, a canonical problem in using ML in economics, where exact prices are unobserved and one only sees a range containing the price (Rosett, 1959).

Disclaimer

This report is **AI-GENERATED** using Large Language Models and WisPaper (a scholar search engine). It analyzes academic papers' tasks and contributions against retrieved prior work. While this system identifies **POTENTIAL** overlaps and novel directions, **ITS COVERAGE IS NOT EXHAUSTIVE AND JUDGMENTS ARE APPROXIMATE**. These results are intended to assist human reviewers and **SHOULD NOT** be relied upon as a definitive verdict on novelty.

Note that some papers exist in multiple, slightly different versions (e.g., with different titles or URLs). The system may retrieve several versions of the same underlying work. The current automated pipeline does not reliably align or distinguish these cases, so human reviewers will need to disambiguate them manually.

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Core Task Landscape

This paper addresses: **Gaussian Mean Estimation from Coarse Data**

A total of **36 papers** were analyzed and organized into a taxonomy with **14 categories**.

Taxonomy Overview

The research landscape has been organized into the following main categories:

- **Quantization-Based Mean Estimation**
- **Distributed Mean Estimation Under Communication Constraints**
- **Coarse Partition-Based Mean Estimation**
- **Continuous and Functional Mean Estimation**
- **Robust and High-Dimensional Mean Estimation**
- **Application-Specific Mean Estimation**

Complete Taxonomy Tree

- Gaussian Mean Estimation from Coarse Data Survey Taxonomy
- Quantization-Based Mean Estimation
 - One-Bit Quantization Estimation (4 papers)
 - [7] One-Bit Distributed Mean Estimation with Unknown Variance (Kumar, 2025) [View paper](#)
 - [11] MCRB for Parameter Estimation from One-Bit Quantized and Oversampled Measurements (Tabrikian, 2025) [View paper](#)
 - [17] Linear and Nonlinear MMSE Estimation in One-Bit Quantized Systems under a Gaussian Mixture Prior (Benedikt Fesl, 2024) [View paper](#)
 - [27] On the Mean Square Error Optimal Estimator in One-Bit Quantized Systems (Benedikt Fesl, 2023) [View paper](#)
 - Multi-Bit and Adaptive Quantization (6 papers)
 - [9] Estimation from quantized Gaussian measurements: When and how to use dither (Joshua Rapp, 2019) [View paper](#)
 - [10] Bandwidth-constrained distributed estimation for wireless sensor networks-part I: Gaussian case (Alejandro Ribeiro, 2006) [View paper](#)
 - [29] Likelihood-based statistical estimation from quantized data (Vardeman, 2005) [View paper](#)
 - [32] Quantization with adaptation-estimation of Gaussian linear models (László Gerencsár, 2008) [View paper](#)
 - [35] Optimal Scalar Quantization for Parameter Estimation (Rodrigo Cabral Farias, 2013) [View paper](#)
 - [36] Adaptive Quantizers for Estimation (Rodrigo Cabral Farias, 2012) [View paper](#)
 - Quantization with Approximate Message Passing (1 papers)
 - [3] Approximate message passing with parameter estimation for heavily quantized measurements (Huang Shuai, 2022) [View paper](#)
 - Quantization Theory and Optimality (3 papers)
 - [16] Quantized Estimation of Gaussian Sequence Models in Euclidean Balls (Yuancheng Zhu, 2022) [View paper](#)
 - [23] Block quantization of correlated Gaussian random variables (Jingwei Huang, 1963) [View paper](#)
 - [33] On MMSE estimation from quantized observations in the nonasymptotic regime (Lee Jae-Ho, 2015) [View paper](#)

- Distributed Mean Estimation Under Communication Constraints
 - Correlated and Personalized Distributed Estimation (3 papers)
 - [4] Correlated quantization for distributed mean estimation and optimization (Suresh, 2022) [View paper](#)
 - [6] Personalized Heterogeneous Gaussian Mean Estimation Under Communication Constraints (Ruida Zhou, 2024) [View paper](#)
 - [18] Efficient Quantization Mean Estimation for Distributed Learning (Xiaojun Mao, 2025) [View paper](#)
 - Geometric and Information-Theoretic Lower Bounds (1 papers)
 - [34] Geometric Lower Bounds for Distributed Parameter Estimation under Communication Constraints (Han Yan-jun, 2018) [View paper](#)
- Coarse Partition-Based Mean Estimation ★ (2 papers)
 - [0] Mean Estimation from Coarse Data: Characterizations and Efficient Algorithms (Anon et al., 2026) [View paper](#)
 - [20] Gaussian likelihood based Bernoulli particle filter for non-uniformly quantized interval measurement (Xiaoxue Feng, 2016) [View paper](#)
- Continuous and Functional Mean Estimation
 - Gaussian Process Mean Function Estimation (2 papers)
 - [5] Maximum likelihood estimation of mean functions for Gaussian processes under small noise asymptotics (Kobayashi, 2025) [View paper](#)
 - [30] Gaussian Estimation of One-Factor Mean Reversion Processes (Freddy H. Marañón-Sánchez, 2021) [View paper](#)
 - Transfer Learning for Functional Mean Estimation (1 papers)
 - [2] Transfer learning for functional mean estimation: Phase transition and adaptive algorithms (T. Tony Cai, 2024) [View paper](#)
 - Discretization and Inverse Problems (3 papers)
 - [8] Statistical inverse problems: discretization, model reduction and inverse crimes (Jari Kaipio, 2007) [View paper](#)
 - [12] Validation and error estimation of computational models (Ramesh Rebba, 2006) [View paper](#)
 - [31] Convergence of posteriors for discretized log Gaussian Cox processes (Rasmus Waagepetersen, 2004) [View paper](#)
- Robust and High-Dimensional Mean Estimation (2 papers)
 - [15] Can SGD Select Good Fishermen? Local Convergence under Self-Selection Biases and Beyond (Kalavasis, 2025) [View paper](#)
 - [26] List-Decodable Mean Estimation in Nearly-PCA Time (Diakonikolas, 2020) [View paper](#)
- Application-Specific Mean Estimation
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 - [13] On the Equivalence of Maximum SNR and MMSE Estimation: Applications to Additive Non-Gaussian Channels and Quantized Observations (Luca Rugini, 2022) [View paper](#)
 - [21] Nonlinear estimation with quantized measurements--PCM, predictive quantization, and data compression (W.V. Velde, 1970) [View paper](#)
 - Networked Services and Adaptive Systems (3 papers)
 - [14] Estimating Mean Viral Load Trajectory From Intermittent Longitudinal Data and Unknown Time Origins. (Yonatan Woodbridge, 2025) [View paper](#)
 - [19] Conditional Density Estimation of Service Metrics for Networked Services (Forough Shahab Samani, 2021) [View paper](#)
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 - Computer Vision and Graphics (4 papers)
 - [1] HAC: Hash-grid Assisted Context for 3D Gaussian Splatting Compression (Yihang Chen, 2024) [View paper](#)
 - [22] Empirical Comparison of Curvature Estimators on Volume Images and Triangle Meshes (Markus Kronenberger, 2019) [View paper](#)
 - [24] Bayesian adaptive estimation: The next dimension (Janne V. Kujala, 2006) [View paper](#)
 - [25] Gaussian wavelet features and their applications for analysis of discretized signals (G. Ososkov, 2000) [View paper](#)

Narrative

Core task: Gaussian mean estimation from coarse data. This field addresses the challenge of estimating the mean of a Gaussian distribution when observations are degraded by quantization, partitioning, or communication constraints. The taxonomy reveals several main branches that reflect different facets of this problem. Quantization-Based Mean Estimation focuses on scenarios where continuous observations are mapped to discrete levels, often exploring optimal quantizer design and the resulting estimation error, as seen in works like Quantized Gaussian Dither[9] and Optimal Scalar Quantization[35]. Distributed Mean Estimation Under Communication Constraints examines settings where multiple agents must collaborate under bandwidth limitations, with studies such as Quantized Message Passing[3] and Geometric Communication Bounds[34] addressing trade-offs between communication cost and accuracy. Coarse Partition-Based Mean Estimation considers data that arrive in broad bins or intervals rather than precise quantization levels. Meanwhile, Continuous and Functional Mean Estimation extends the problem to infinite-dimensional or functional data, Robust and High-Dimensional Mean Estimation tackles outliers and scaling challenges, and Application-Specific Mean Estimation applies these ideas to domains like viral load tracking or service metrics.

Several active lines of work highlight contrasting emphases and open questions. One thread investigates the interplay between quantization granularity and estimation performance, with papers like MMSE Quantized Nonasymptotic[33] and One-Bit Mean Estimation[7] pushing the limits of minimal-bit regimes. Another explores adaptive and data-dependent quantizers, as in Adaptive Quantizers[36] and Quantization Adaptation Estimation[32], which adjust binning strategies based on observed statistics. The original paper, Coarse Mean Estimation[0], sits within the Coarse Partition-Based branch and shares thematic ground with Bernoulli Particle Filter[20], both addressing estimation from relatively crude partitions of the observation space. Compared to the fine-grained quantization focus of One-Bit Mean Estimation[7] or the communication-centric perspective of Quantized Message Passing[3], Coarse Mean Estimation[0] emphasizes scenarios where data are inherently grouped into coarse bins, raising questions about optimal partition design and the fundamental limits of inference under such constraints.

Related Works in Same Category

The following **1 sibling papers** share the same taxonomy leaf node with the original paper:

1. Gaussian likelihood based Bernoulli particle filter for non-uniformly quantized interval measurement

Authors: Xiaoxue Feng, Feng Pan, Qi Gao, Weixing Li | **Year/Venue:** 2016 | **URL:** [View paper](#)

Abstract

Traditional Bayesian estimation uses stochastic but precise measurements or measurement models to estimate the state of a dynamic system. However, in many practical applications, interval measurements representing measurements affected by bounded errors or bias

of typically unknown distribution are common and convenient. Recently, joint target detection and tracking in the presence of interval measurements, the quantization observations in wireless sensor networks or the unknown system delays in...

Relationship Analysis

Both papers belong to the coarse partition-based mean estimation category, addressing estimation from observations revealed through containing sets or intervals. The candidate paper focuses on non-uniformly quantized interval measurements in target tracking applications using Bernoulli particle filters with Gaussian likelihoods, while the original paper provides theoretical characterizations of identifiability for convex partitions and develops computationally efficient algorithms for Gaussian mean estimation from general coarse data. The key difference is that the original paper establishes fundamental theoretical results (identifiability characterization and polynomial-time algorithms) for general convex partitions, whereas the candidate paper applies domain-specific methods to tracking problems with quantized sensor measurements.

Contributions Analysis

Overall novelty summary. The paper addresses Gaussian mean estimation when observations are revealed only through coarse partitions rather than exact values. It sits in the 'Coarse Partition-Based Mean Estimation' leaf, which contains only two papers total (including the original work). This represents a relatively sparse research direction within the broader taxonomy of 36 papers across quantization, distributed estimation, and functional data methods. The sibling paper focuses on particle filtering applications, suggesting limited prior work directly tackling the theoretical foundations of convex partition-based estimation.

The taxonomy reveals that neighboring branches emphasize different observation models: 'Quantization-Based Mean Estimation' (13 papers) studies discrete-level mappings with known quantizer designs, while 'Distributed Mean Estimation' (4 papers) addresses communication-constrained protocols across multiple agents. The original work diverges by considering arbitrary convex partitions without assuming structured quantization or distributed settings. The scope note for the leaf explicitly excludes point quantization and distributed protocols, positioning this work at the intersection of geometric constraints (convexity) and identifiability theory rather than communication or bit-budget optimization.

Among 22 candidates examined, the contribution on polynomial-time algorithms shows overlap with 2 refutable candidates from 10 examined, suggesting some prior computational work exists in related settings. The geometric identifiability characterization examined 2 candidates with no refutations, indicating this theoretical angle may be less explored. The linear regression extension examined 10 candidates without refutations, pointing to potential novelty in applying coarse-data frameworks to regression. The limited search scope (top-K semantic matches) means these statistics reflect nearby literature rather than exhaustive coverage of all estimation theory.

Given the sparse leaf structure and the limited 22-candidate search, the work appears to occupy a relatively underexplored niche bridging partition geometry and statistical identifiability. The computational contribution faces some prior overlap, while the identifiability characterization and regression application show fewer direct precedents among examined papers. A broader search beyond semantic neighbors might reveal additional connections to convex geometry or interval-censored data literature not captured here.

This paper presents **3 main contributions**, each analyzed against relevant prior work:

Contribution 1: Geometric characterization of identifiability for convex partitions

Description: The authors characterize exactly when Gaussian mean estimation from coarse data is identifiable under convex partitions. They prove that a convex partition is non-identifiable if and only if almost all sets in the partition are parallel slabs in some direction, combining tools from optimal transport and variance reduction inequalities.

This contribution was assessed against **2 related papers** from the literature. Papers with potential prior art are analyzed in detail with textual evidence; others receive brief assessments.

1. Can SGD Select Good Fishermen? Local Convergence under Self-Selection Biases and Beyond

URL: [View paper](#)

Brief Assessment

SGD Self-Selection[15] focuses on self-selection bias in linear regression and coarsening problems, not on characterizing identifiability conditions for convex partitions in Gaussian mean estimation. The paper does not address the geometric characterization of when convex partitions are identifiable based on parallel slabs.

2. Applications of geometry in optimization and statistical estimation

URL: [View paper](#)

Brief Assessment

Geometry Optimization Estimation[37] focuses on mixture models, frailty models, and Bayesian sensitivity analysis—not on coarse data or Gaussian mean estimation from convex partitions. The geometric tools applied are for different statistical problems.

Contribution 2: First polynomial-time algorithm for coarse Gaussian mean estimation

Description: The authors provide the first computationally efficient algorithm for estimating the Gaussian mean from coarse samples under identifiable convex partitions. The algorithm runs in polynomial time and achieves the same sample complexity as prior sample-efficient but computationally inefficient methods.

This contribution was assessed against **10 related papers** from the literature. Papers with potential prior art are analyzed in detail with textual evidence; others receive brief assessments.

1. Algorithm Design for Reliable Machine Learning

URL: [View paper](#)

Brief Assessment

Reliable Machine Learning[45] focuses on a broader algorithmic framework for robust machine learning problems including truncated statistics and censored statistics. While it mentions 'gaussian mean estimation from coarse data' as one topic, the thesis does not provide sufficient technical detail about polynomial-time algorithms or sample complexity bounds that would allow direct comparison with the original paper's specific contribution on coarse Gaussian mean estimation under identifiable convex partitions.

2. Privately estimating a gaussian: Efficient, robust, and optimal

URL: [View paper](#)

Brief Assessment

Private Gaussian Estimation[40] focuses on differentially private estimation of Gaussian distributions with optimal sample complexity, not on coarse data or convex partitions. The technical problems and methods are fundamentally different.

3. Statistical Query Algorithms for Mean Vector Estimation and Stochastic Convex Optimization

URL: [View paper](#)

Brief Assessment

Statistical Query Algorithms[46] focuses on statistical query complexity for mean vector estimation of distributions over convex bodies, not specifically on coarse Gaussian mean estimation under identifiable convex partitions. The candidate addresses a different problem setting without the coarsening framework central to the original contribution.

4. Efficient Algorithms for Learning from Coarse Labels

URL: [View paper](#)

Prior Art Analysis

Coarse Labels Learning[39] demonstrates that polynomial-time algorithms for coarse Gaussian mean estimation already existed prior to the original paper. The candidate paper explicitly states they provide 'an efficient algorithm' for Gaussian mean estimation from coarse data when partition sets are convex, and describes this as a central problem in their work. Both papers address the same core problem: estimating Gaussian means from coarse/partitioned observations with convex sets, using computationally efficient methods. The candidate paper's abstract directly claims to solve this problem efficiently, which refutes the novelty claim that the original paper was 'the first' to provide such an algorithm.

Evidence

Evidence 1 - **Rationale:** Both papers claim to provide efficient (polynomial-time) algorithms for Gaussian mean estimation from coarse data under convex partitions. The candidate paper explicitly addresses this as 'a central problem' and provides 'an efficient algorithm' for the convex case, directly overlapping with the original paper's claimed contribution of being 'the first polynomial-time algorithm'. - **Original:** we give the first polynomial-time algorithm for finding ϵ -accurate estimates of the gaussian mean given coarse samples from an unknown convex partition, matching the optimal $eo(d/\epsilon^2)$ sample complexity. - **Candidate:** we also investigate the case of (infinitely many) real valued labels focusing on a central problem in censored and truncated statistics: gaussian mean estimation from coarse data. we provide an efficient algorithm when the sets in the partition are convex

Evidence 2 - **Rationale:** The candidate paper formalizes and studies learning from coarse data, which is the same problem domain as the original paper. The candidate's work on efficient algorithms for coarse Gaussian mean estimation under convex partitions directly challenges the original's claim of being 'the first' to provide such polynomial-time algorithms. - **Original:** we provide the first polynomial-time algorithm for estimating μ^* for any convex, identifiable partition p . the algorithm matches the sample complexity of Fotakis et al. (2021), while also being computationally efficient. - **Candidate:** for many learning problems one may not have access to fine grained label information; e.g., an image can be labeled as husky, dog, or even animal depending on the expertise of the annotator. in this work, we formalize these settings and study the problem of learning from such coarse data.

5. Optimal robust mean and location estimation via convex programs with respect to any pseudo-norms

URL: [View paper](#)

Brief Assessment

Robust Mean Estimation[43] addresses robust mean estimation under adversarial corruption with general pseudo-norms, not the specific problem of coarse Gaussian mean estimation under convex partitions studied in the original paper.

6. Can SGD Select Good Fishermen? Local Convergence under Self-Selection Biases and Beyond

URL: [View paper](#)

Prior Art Analysis

SGD Self-Selection[15] provides a polynomial-time local convergence algorithm for coarse Gaussian mean estimation under convex partitions. The paper explicitly states they give 'the first polynomial time local convergence algorithm for coarse gaussian mean estimation given samples generated from a convex partition' and that 'Previously, only a sample-efficient algorithm was known due to Fotakis, Kalavasis, Kontonis, and Tzamos [FKKT21, Colt'21].' This directly challenges the novelty claim of being the first polynomial-time algorithm, as SGD Self-Selection[15] presents such an algorithm with detailed theoretical guarantees.

Evidence

Evidence 1 - **Rationale:** This theorem in SGD Self-Selection[15] provides a concrete polynomial-time algorithm with sample complexity guarantees for coarse Gaussian mean estimation under convex partitions, demonstrating prior work exists. - **Original:** we give the first polynomial-time algorithm for finding ϵ -accurate estimates of the gaussian mean given coarse samples from an unknown convex partition, matching the optimal $eo(d/\epsilon^2)$ sample complexity. - **Candidate:** theorem 3.8. let $\epsilon \in (0, 1]$, suppose p is a convex α -information preserving partition of \mathcal{R}^d with respect to $n(\mu^*, \mathcal{I})$ and $\|\mu^*\|_2 \leq d$. there is an algorithm that outputs an estimate $\hat{\mu}$ satisfying $\|\hat{\mu} - \mu^*\|_2 \leq \epsilon$ with probability $1 - \delta$. moreover, the algorithm requires $m = \frac{eo(d/\epsilon^2)}{\alpha^4} + d \log(1/\delta) \dots$

7. All-in-one robust estimator of the Gaussian mean

URL: [View paper](#)

Brief Assessment

All-in-one Robust Estimator[44] focuses on robust estimation under adversarial contamination, not coarse data where samples are revealed only through partition sets. The technical frameworks differ fundamentally.

8. Computational and statistical tradeoffs via convex relaxation

URL: [View paper](#)

Brief Assessment

Computational Statistical Tradeoffs[42] focuses on algorithmic weakening and convex relaxation hierarchies for denoising problems, not on coarse Gaussian mean estimation or convex partitions. The technical domains are fundamentally different.

9. Optimal Sub-Gaussian Mean Estimation in

URL: [View paper](#)

Brief Assessment

Sub-Gaussian Mean Estimation[38] addresses optimal mean estimation from i.i.d. samples under finite variance assumptions, not coarse data where samples are revealed only through partition sets. The candidate focuses on sub-gaussian convergence rates for standard mean estimation, while the original tackles the distinct problem of estimating means when exact sample values are hidden by convex partitions.

10. Private Robust Estimation by Stabilizing Convex Relaxations

URL: [View paper](#)

Brief Assessment

Private Robust Estimation[41] addresses differentially private robust mean estimation under adversarial outliers, not coarse data estimation under convex partitions. The technical problems are fundamentally different.

Contribution 3: Sample- and computationally-efficient algorithm for linear regression with market friction

Description: As a concrete application, the authors develop an efficient algorithm for linear regression with market friction, where exact prices are unobserved and only ranges containing prices are available. This addresses a canonical economics problem dating back to Rosett (1959).

This contribution was assessed against **10 related papers** from the literature. Papers with potential prior art are analyzed in detail with textual evidence; others receive brief assessments.

1. Disentangling sources of high frequency market microstructure noise

URL: [View paper](#)

Brief Assessment

Market Microstructure Noise[49] focuses on disentangling sources of high-frequency market microstructure noise in financial data, not on developing efficient algorithms for linear regression with market friction where exact prices are unobserved.

2. Linear regression for currency European call option pricing in incomplete markets

URL: [View paper](#)

Brief Assessment

Currency Option Pricing[53] focuses on robust linear regression techniques for European call option pricing with outliers in exchange rate data, not on efficient algorithms for linear regression with market friction where exact prices are unobserved and only ranges are available.

3. Linear panel regressions with two-way unobserved heterogeneity

URL: [View paper](#)

Brief Assessment

Linear Panel Regressions[51] addresses linear panel regression with two-way unobserved heterogeneity in a different econometric setting. It does not address market friction where exact prices are unobserved and only ranges are available, which is the specific problem tackled by the original paper's algorithm.

4. Analysis of high frequency financial data

URL: [View paper](#)

Brief Assessment

High Frequency Data[56] focuses on econometric methods for analyzing high-frequency financial transaction data, including irregular temporal spacing and market microstructure. It does not address the specific algorithmic problem of linear regression with market friction where exact prices are unobserved and only ranges are available, which is the core contribution of the original paper.

5. Employing gaussian process regression with bayesian inference to predict the living-materials producer price index in china

URL: [View paper](#)

Brief Assessment

Gaussian Process Regression[47] focuses on Bayesian inference for price index prediction using Gaussian processes, not on developing efficient algorithms for linear regression with market friction where exact prices are unobserved and only ranges are available.

6. The Impact of Electronic Banking Products on Economic Growth: The case of Kosovo

URL: [View paper](#)

Brief Assessment

Electronic Banking Impact[50] focuses on the macroeconomic impact of electronic banking products (ATMs, POS, e-banking) on GDP growth in Kosovo using linear regression. It does not address the algorithmic problem of linear regression with market friction where exact prices are unobserved—a canonical economics problem dating back to Rosett (1959) that the original paper tackles.

7. The effect of financial reporting quality, debt maturity, political connection, and corporate governance on investment efficiency: Evidence from Indonesia

URL: [View paper](#)

Brief Assessment

Investment Efficiency Indonesia[52] examines corporate investment efficiency in Indonesian firms using financial reporting quality and governance metrics, not algorithmic methods for linear regression with market friction or unobserved price ranges.

8. Risk Premia Reconsidered: Illiquidity and Selection Bias for Stocks and Corporate Bonds in the pre-World War I period

URL: [View paper](#)

Brief Assessment

Risk Premia Reconsidered[48] focuses on historical financial market analysis with illiquidity and selection bias in pre-WWI stock and bond markets. It does not address algorithmic efficiency for linear regression with market friction or the computational complexity questions central to the original paper's contribution.

9. A relation between the efficient, transaction and mid prices: Disentangling sources of high frequency market microstructure noise

URL: [View paper](#)

Brief Assessment

Efficient Transaction Prices[55] focuses on disentangling efficient, transaction, and mid prices in high-frequency market microstructure, not on developing algorithms for linear regression with market friction or coarse data estimation.

10. A Gibbs sampling approach to the estimation of linear regression models under daily price limits

URL: [View paper](#)

Brief Assessment

Gibbs Price Limits[54] focuses on Gibbs sampling estimation methods for linear regression under daily price limits in financial markets. The original paper addresses a broader coarse data framework with convex partitions and develops SGD-based algorithms, representing a fundamentally different technical approach and problem scope.

Appendix: Text Similarity Detection

No high-similarity text segments were detected across any compared papers.

References

- [0] Mean Estimation from Coarse Data: Characterizations and Efficient Algorithms [View paper](#)
- [1] HAC: Hash-grid Assisted Context for 3D Gaussian Splatting Compression [View paper](#)
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