

# Adaptive Indexing: Basic and Hybrid Approaches

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**Abstract—What is this paper about?**

## I. INTRODUCTION

Motivation. Main Idea. Goal. Structure of the paper.

## II. BACKGROUND

Idea of adaptive indexing. First approaches.

## III. DATABASE CRACKING

### A. Introduction

Short description of method

### B. Strength of Database Cracking

Small overhead + further advantages

### C. Weakness of Database Cracking

Slow convergence + further disadvantages

## IV. ADAPTIVE MERGING

### A. Introduction

Short description of method

### B. Strength of Adaptive Merging

Fast convergence + further advantages

### C. Weakness of Adaptive Merging

Big overhead + further disadvantages

## V. HYBRID APPROACHES

### A. Strategies for designing hybrid approach

Idea of perfect hybrid. Combination options. Further subsection need to be added.

## VI. EVALUATION

Point out complementary nature of cracking and merging. Compare to other hybrid approaches. Speculate on future and usage of the methods

## VII. RELATED WORK

Some research on related work has to be done.

## VIII. CONCLUSIONS

Sum up what happened

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## REFERENCES

- [1] Idreos, Stratos, Martin L. Kersten, and Stefan Manegold. "Database Cracking." CIDR. Vol. 7. 2007.
- [2] Schuhknecht, Felix Martin. "Closing the circle of algorithmic and system-centric database optimization: a comprehensive survey on adaptive indexing, data partitioning, and the rewiring of virtual memory." (2016).
- [3] Graefe, Goetz, and Harumi Kuno. "Self-selecting, self-tuning, incrementally optimized indexes." Proceedings of the 13th International Conference on Extending Database Technology. ACM, 2010.
- [4] Idreos, Stratos, et al. "Merging what's cracked, cracking what's merged: adaptive indexing in main-memory column-stores." Proceedings of the VLDB Endowment 4.9 (2011): 586-597.
- [5] Pirk, Holger, et al. "Database cracking: fancy scan, not poor man's sort!." Proceedings of the Tenth International Workshop on Data Management on New Hardware. ACM, 2014.
- [6] Schuhknecht, Felix Martin, Alekh Jindal, and Jens Dittrich. "The uncracked pieces in database cracking." Proceedings of the VLDB Endowment 7.2 (2013): 97-108.