Scalable Big Data Clustering by Random Projection Hashing

PHILIP WILSEY, UNIVERSITY OF CINCINNATI

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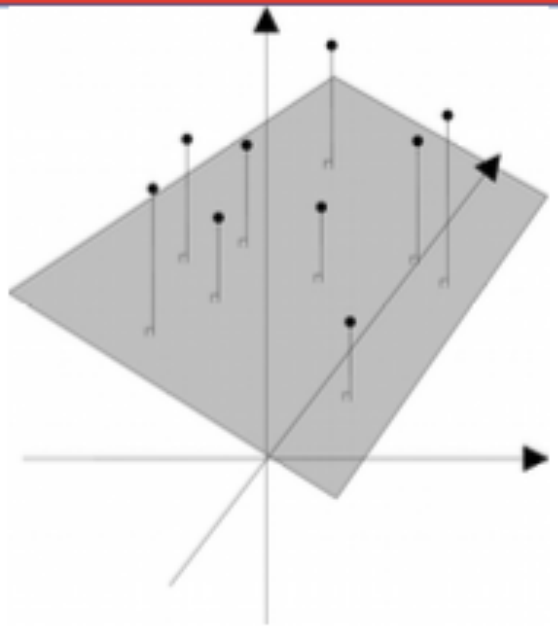
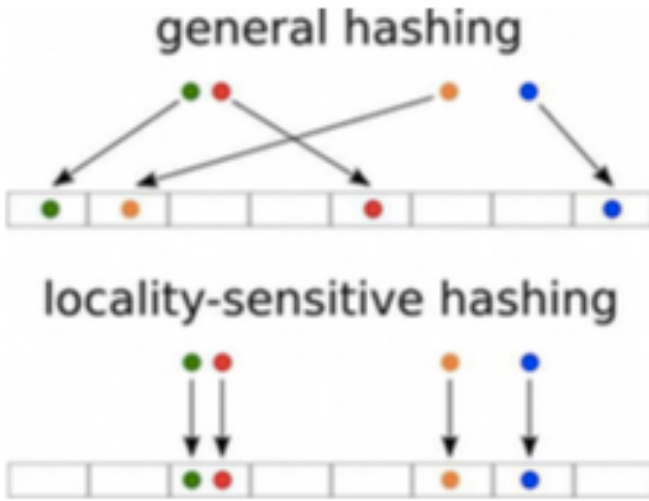
Scalable Big Data Clustering by Random Projection Hashing

- High-performance data clustering on high-dimensional data
- Random projection to reduce dimensionality
- Locality Sensitive Hashing
- Distributed, map-reduce capability that operates without data exchange
- Very fast





Algorithm	ARI	Purity	WCSSE	Time
Kmeans	0.461	0.600	182,168.70	24.746
SL	0.000	0.189	556,519.10	413.880
CL	0.327	0.377	222,044.40	414.330
AL	0.332	0.359	236,142.80	414.100
Ward's	0.491	0.660	191,441.10	414.450
SOTA	0.314	0.397	210,490.10	14.244
RPHash	0.363	0.508	210,628.60	0.484
RPHash_Tree	0.449	0.609	194,688.70	0.262

Sponsor

- NSF: Grant ACI-1440420

Contact Us

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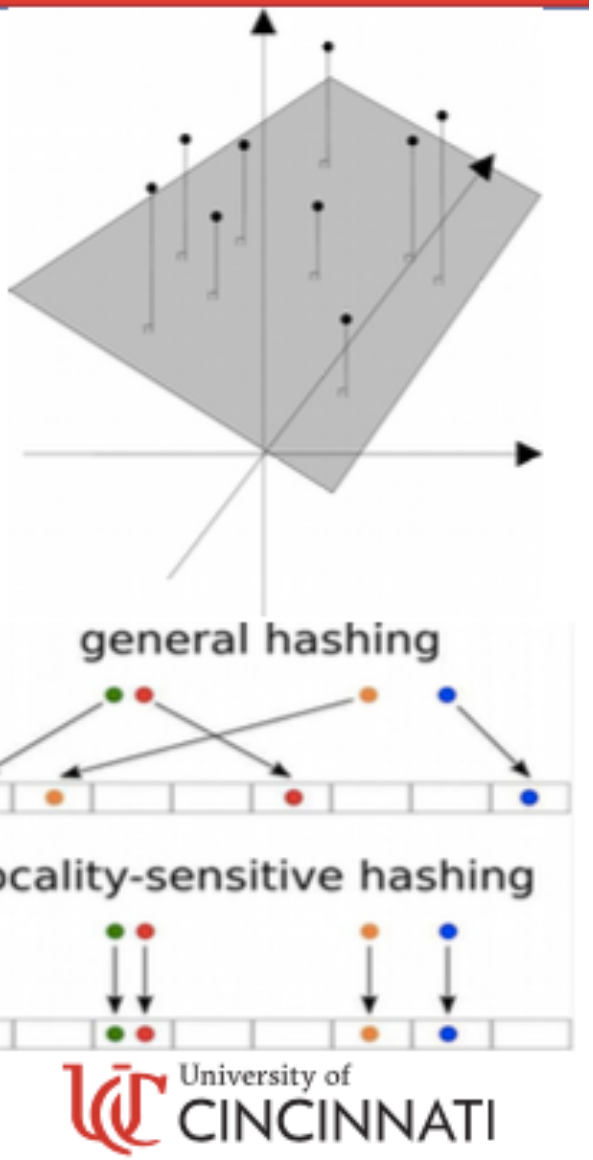
Scalable Big Data Clustering by Random Projection Hashing

- High-performance data clustering on high-dimensional data
- Random projection to reduce dimensionality
- Locality Sensitive Hashing/Tree Walk
- Distributed, map-reduce capability that operates without data exchange
- Very fast, scalable performance



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Contact Us: Philip A. Wilsey wilseypa@gmail.com

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Performance Comparison

Algorithm	ARI	Purity	WCSSE	Time (sec)
Kmeans	0.461	0.600	182,168.70	24.746
SL	0.000	0.189	556,519.10	413.880
CL	0.327	0.377	222,044.40	414.330
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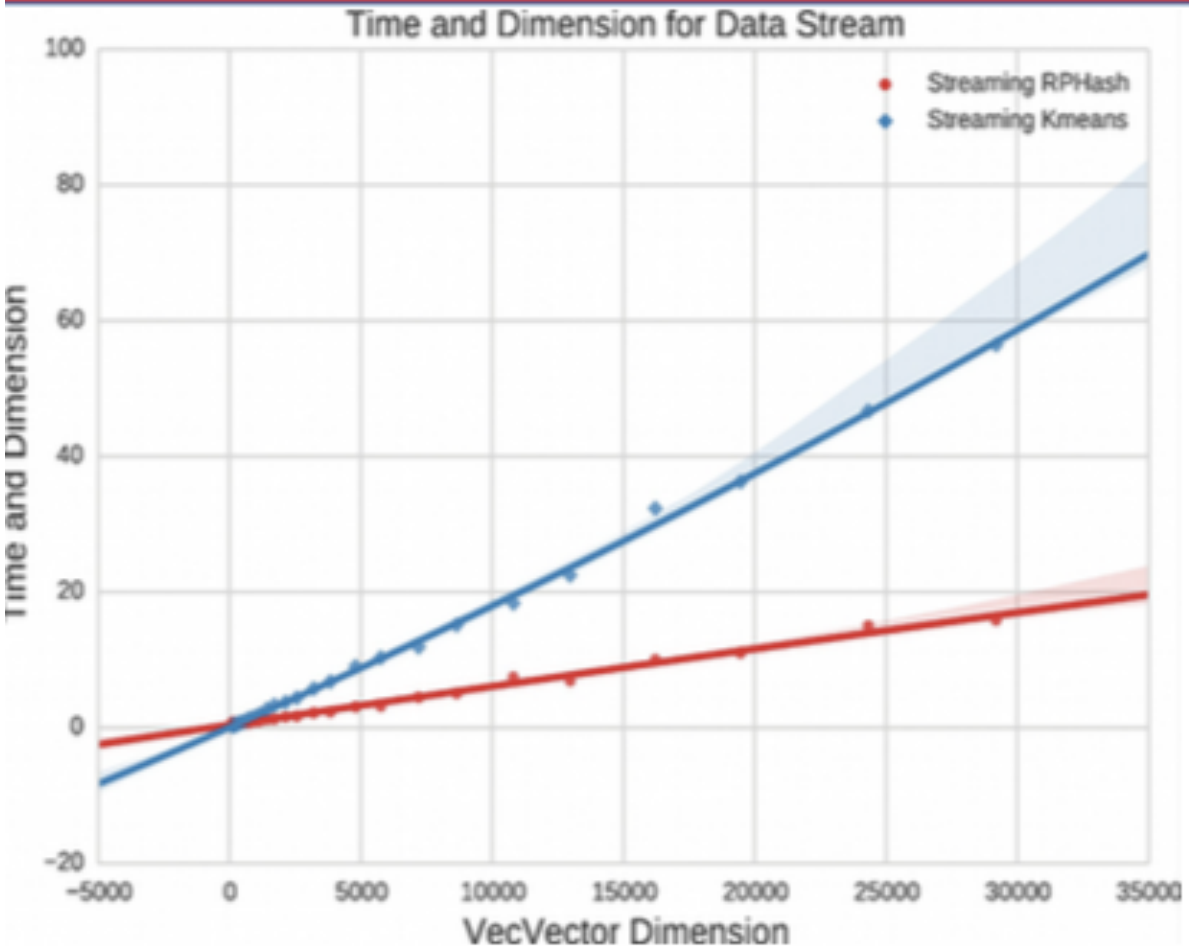
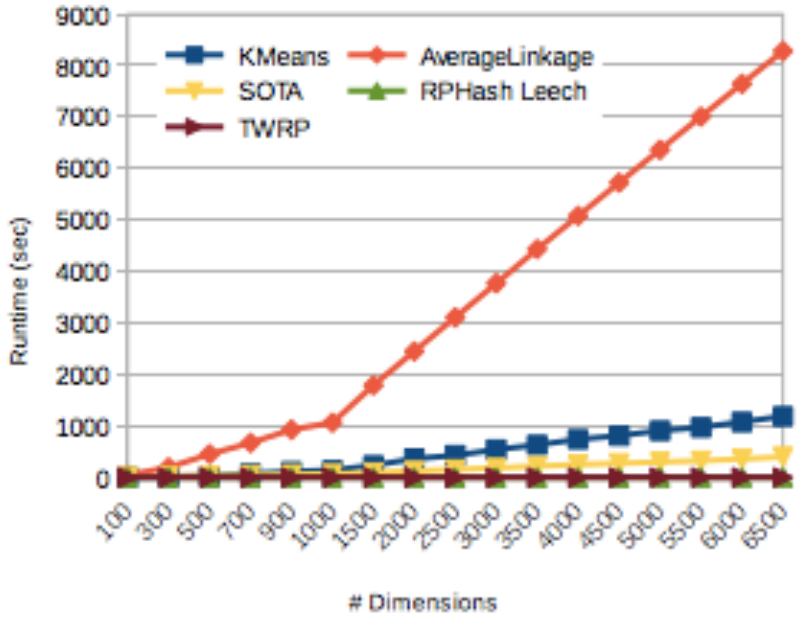
Scalability





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