Discussion

• Old problem with big data (volume) challenge
• The optimization tricks are applicable to many search problems
  – Lower bounding
  – Ordering
  – Early abandoning/stop
Discussion

- Huge impact
  - Change the recent pessimism about using DTW for real-time problems
  - Ultra fast subsequence search
Discussion

• **Exhaustive** research
  – All 19 lower bound measures from the literature

• **Exhaustive** experiments
  – Random walk and real datasets, increasing query sizes
  – All code and data available online
  – Almost all state-of-art time-series mining applications that use similarity search
Class discussion notes

• Can we make the sequential DTW computation (on consecutive subsequences) incremental?
  – Possibility of reusing the distances computed for the overlapping cells in the matrix?
  – $O(n^2) \rightarrow O(n)$?
  – Minimality guarantee? With approximation?
Discussion

• Approximate search method?
  – “However an approximate search method being faster than our approach is a very high threshold to meet”

• Other metrics?