

The capabilities of technology today has allowed for ease of storing and retrieval of dance media files. However, due to the rich semantic content of dance media files and the volume of dance media available, it becomes a challenge to search a database for specific dance content.

### Objectives

Develop a mobile dance application that documents Latin dance based on user annotations and a system to allow users to search dance content. It is intended for dancers or users of the application to be able to retrieve dance content enabling a recall in order to perform the dance move retrieved, through searching annotations and other keywords with the help of query expansion techniques.



Mobile App



Dance Vocabulary



Media Search



### The Dance Annotation Tool: MetaDance

We developed a dance annotation tool to solve the problem of documenting dance media files.

- Implements Dance Ontology
- Dance vocabulary for annotating
- Pre-defined dance terms
- Self-defined dance terms



#### Functionalities



Annotate Dance Videos | Browse Database | Edit/Delete Annotations

### Dance Ontology

- Developed using Bottom-up Approach
- Dance Term Collection: web-scraping & natural language processing

1099 Axioms

267 Classes

3 Object properties

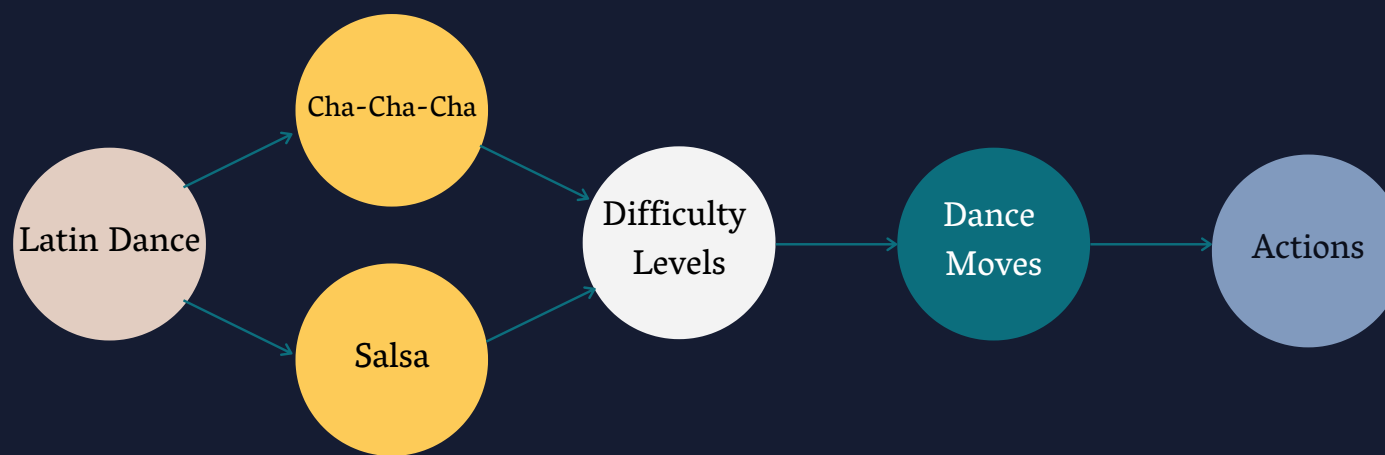


Figure 1: General Structure of Dance Ontology Developed

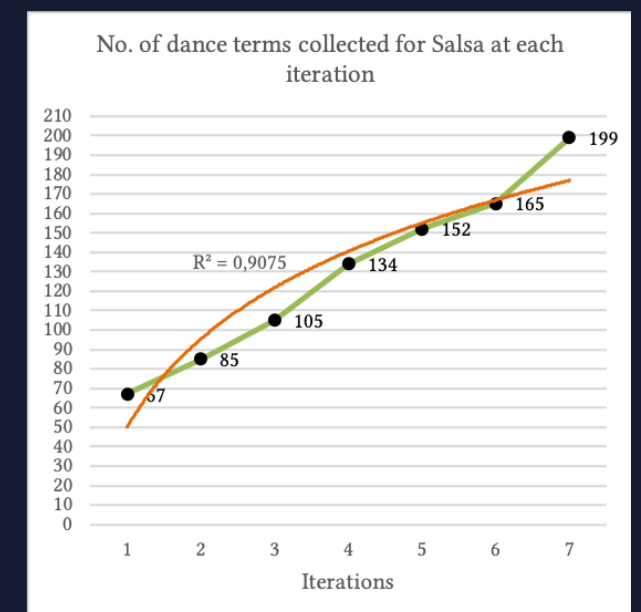
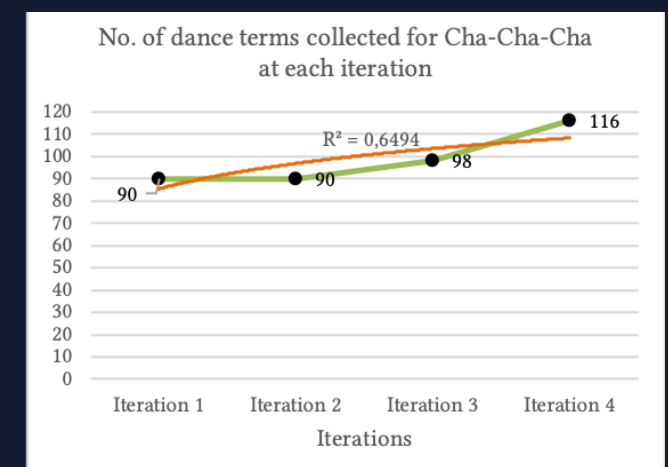


Figure 2: The number of dance terms collected for each dance type at each iteration



### The Dance Archival System: DanceBase

DanceBase is a system developed to allow users to search for dance multimedia with or without exact knowledge of dance terminology. The DanceBase search engine allows users to search data from a dance database. The dance database was designed and developed for the DanceBase system and houses dance images, video and audio for salsa, bachata and cha cha dance styles.



#### Functionalities

- Search dance media
- Play/View multimedia
- Add media to Database

#### Query Expansion

The DanceBase system implements two query-expansion techniques to improve recall of search results

- Content-Based Query
- Pseudo-Relevance Feedback

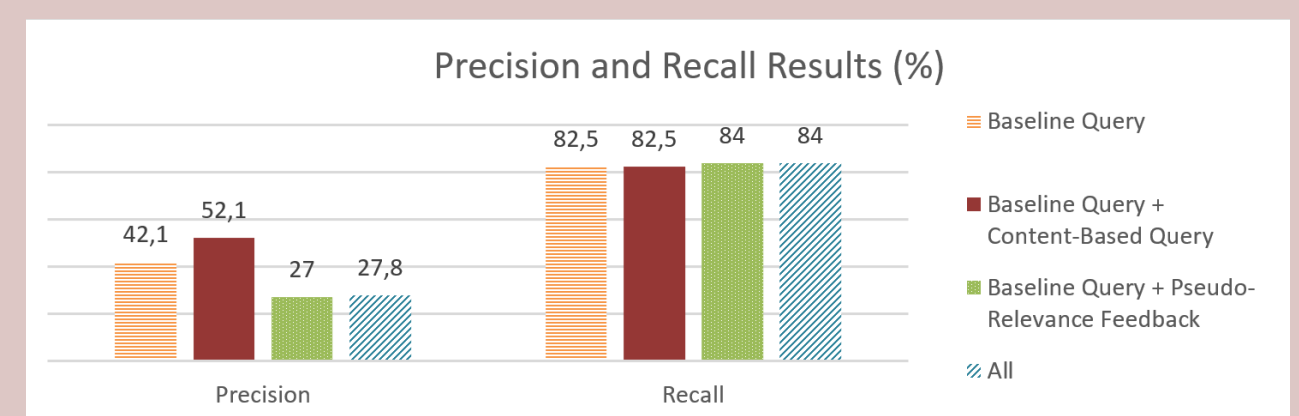


Figure 3: Precision and Recall results

### Conclusions

The Dance Annotation Tool successfully allows users to annotate dance media. The method used for collecting dance terms works well and can be extended to other formal dances that can be included in the tool. The Dance Archival System produced a database to store dance multimedia and implements query expansion techniques which improved recall as hypothesized. Overall the completion of this project resulted in two applications to help dancers store, document and learn from dance media

