Bassoon Teaching Application

Problem:

Bassoon fingering is difficult to learn. There are many variations, not well codified. Different fingerings can be used to produce the same note. Some fingerings produce stronger, clearer notes, while others may be easier and faster to play for passing notes in fast passages, which may include slurring.

We want a tool to help students to work out fingerings for different kinds of passages. It should be an on-line tool suitable for self study. Fingerings should be shown graphically, on a diagram.

Here's a very simple clarinet example:


Some possible scenarios:

1. Student wants to play a note, asks for a fingering. System displays a diagram with the suggested fingering indicated. Student accepts the suggested fingering, or requests another. This can be repeated until the supply of fingerings for that note is exhausted.

2. Student inputs a passage, possibly indicating slurs, and the system suggests a set of fingerings for that passage.

Mechanics:

Where do the fingerings come from, and how are they retrieved? Here are some ideas.

1. Catalog. An instructor notes the fingerings he or she recommends for a particular passage, and these go into a data base.

2. Catalog with partial matching. If the exact pattern specified is not in the database, the system finds one that is “similar”, according to some system of similarity metrics.

3. Logical inference. The representation incorporates a mechanism to characterize notes (strong, weak, passing) and possible sequences of notes, in a kind of grammar. The system applies logical inference to construct a recommended sequence of fingerings.
Other Features

• Fingering editor. A software interface to enable the user to create fingerings for the database easily, as by clicking on a graphic figure.

• Social networking (optional). A system like Wikipedia which enables remote users to add to the data base. The system could be part of a social network linking members of a professional organization such as the International Double Reed Society.