

Data

The dataset consists of 108 video sequences of birds performing their courtship dance. During the courtship dance the bird jumps between trees. In the state transition graph, nodes correspond to trees, while links between nodes corresponds to a jump from one tree to the other. The video sequences are stored in **sequences.json**

--- app.js -----

Visualization

The visualization is divided into three columns. On the left is the **buttonPanel**, in the middle is the state transition graph (**stg**) and on the right are all individual sequences in the dataset (**smallMultiples**)

buttonPanel

function createButtonPanel(sequences)
sequences: set of all sequences

Creates the button panel on the left side of the screen. The buttons are used to select the video sequences that are shown in summarized form in the state transition graph (stg).

The button panel contains the following buttons:

all sequences: selects all video sequences in the dataset

sequences with [n] nodes (n from 2 to 7): selects all sequences that contain exactly n nodes

clear STG: selects 0 zero sequences and results in an empty stg

show: allows the user to select a range of sequences by entering two numbers in the text input next to the 'show' button

Below the buttons is the infoBox, which displays how many sequences are summarized in the current stg.

stg

function initForce()

Creates the state transition graph (stg) in the center of the screen

The stg uses a force layout.

Each node corresponds to one tree the bird visits during the video sequences.

The number on the node indicates when the bird visited that tree. The length of the link corresponds to the average jumping duration for that link across all selected sequences.

function restart()

Updates the state transition graph when different sequences are selected

function tick()

updates stg (called automatically each iteration)

smallMultiples

function smallMultiples()

Creates a view that represents each sequence as a state sequence.

The trees that the bird visits (states) are represented as rectangles in the same color as the corresponding node in the stg. Jumps between trees (transitions) are represented by gray rectangles.

The user can click on the number next to a sequence to add it to the stg. Selected sequences are highlighted in the small multiples view. This includes sequences that were selected through the buttonPanel.

--- helpers.js -----

function getAverageSittingDurations(nodes, sequences, sequencesToShow)

nodes: set of currently displayed nodes

sequences: set of all sequences

sequencesToShow: set of currently displayed sequences

Returns an array containing the average sitting durations for all n nodes in sequences in sequencesToShow. The number at index 0 is the average sitting duration of node 0 etc.

function getAverageJumpingDuration(source, target, links)

source: source node

target: target node

links: a set of links

Returns average duration of jumps from source to target in the given set of links.