



Nearest neighbour tracker model

This model is probably too simple for any real application, but it is useful for developing and testing the tracker infrastructure and GUI. It works as follows:

For each scan:

- compute the distance from every new blip to the last blip in every active track
- for any (track, blip) pair that would imply too high a speed, too rapid a turning rate, or too much relative change in blip area or intensity (per second), mark the distance as *infinite*
- use this distance matrix to compute a minimum weight matching of tracks to blips; i.e. match blips to tracks in such a way that no blip is matched to more than one track, no track is matched with more than one blip, and the sum of all distances between tracks and their matched blips is minimized. (this uses Donald Knuth's implementation of the Hungarian algorithm for the assignment problem, coded in C)
- every (track, blip) matched pair whose distance is *infinite* is unmatched, and the blip from that pair begins a new track

That's it. The model doesn't provide additional criteria for completing tracks, so a track completes when its last blip was a **long time** ago (see above). Implicit in the model is that in the first scan with any blips, all of those blips begin their own tracks.