Introduction
Attentive processing is a largely unexplored dimension in the computational motion field.

Virtually all past surveys of computational models of motion processing completely ignore attention.

Our work presents a motion hierarchy plus attention to motion.

The Selective Tuning Model (STM)
The selective Tuning Model is a proposal for modeling visual attention in primates and humans.

Although supported by significant biological evidence, it is not without its weaknesses. The main one addressed by this work is that the levels of representation on which it was previously demonstrated (spatial Gaussian pyramids) were not biologically plausible.

Here, the motion domain is chosen in order to demonstrate that the STM can indeed operate as desired with realistic representations.

Discussion
One strength of our model is its incorporation of functionally diverse neurons. Most other models of biological motion perception focus on a single cortical area.

Another strength of our model is its mechanism of visual attention.

This is only the beginning and we actively pursuing several avenues of further work.

The Feedforward Motion Pyramid
It is a neurally-inspired model of the primate motion processing hierarchy.

The model aims to explain how a hierarchical feedforward network consisting of neurons in the cortical areas V1, MT, MST and 7a of primates detects and classifies different kinds of motion patterns.

Fig 1 The overall set of representations for the different types of neurons in areas V1, MT, MST and 7a

The Feedback Mechanism of Visual Attention
The STM model was applied to the feedforward pyramid, adding in the required feedback connections, hierarchical WTA processes, and gating networks. The result is that the model “attends to” motion, and serially focuses on each motion in the sequence in order of response strength.

Fig 3 presents a 3-D visualization of the model receiving an image sequence that contains an approaching object and a counterclockwise rotating object.