# Introduction

In a dietic conversation,

a human speaker only spends an average of 40 percent of the time looking at their conversation partner. The speaker

Our paper

1. propose an intuitive framework in which artists can author patterns of gaze behaviours

2. Propose method to generate sequential look-at-points based on the audio, dynamic in the scene

3. propose head and gaze driver to generate expressive

Since our main application is for interactive characters in a virtual scene, we assume we always know the location of all objects in the scene.

# Background

## Mechanism of Gaze

While gaze can be described in terms of a physiological based models [neck and gaze with muscle], for the purpose of creative interactive virtual characters. Many work often sufficient to use a kinematic model.

The control circuit of head and eye [from that paper]. That inspired EyeCatch [eyecatch]

Gaze driven neck movements

Many previous works generate

idely accepted models of gaze

Saccade, fixation, continuous follow, VOR

Some attempts to model gaze shifts, saccades and etc.

Talk about some literature/models of head/eye breakdown of gaze both in graphics and psychology

talk about Saccade, Micro-saccade, functions of gaze

## Conversational Gaze/Social Gaze

Start with more general statistics of gaze in conversation

Gaze is both a tool to obtain information from the listener and a non-verbal gesture. For example, in a task instruction scenario, gaze can be used as a dietic gesture. And a refusal to look at someone can be interpreted as dismissal or neglect.

Further, different cultures suggest different norms for gaze patterns. In Arab Culture, maintaining eye-contact is an indication of friendliness and politeness, and speakers would seldomly look away. However, in western culture, children are taught to not stare, making it more socially acceptable to occasionally gaze away. On the other end of the spectrum, African American speakers show respect by not looking at the conversation partner, avoiding eye contact all together. (need to double check this when I land)

To allow the authoring of diverse sets of characters, it is essential that these patterns of behaviour can be authored in an intuitive way

## Taking head Methods

Talk about existing talking head technologies and how they do it

Talk about some deep learning 2D solutions, then talk about some deep learning 3D solutions

Talk about the conversational gaze prediction models from videos and images I.e.

Introduce some co-speech gesture generation techniques

# Methodology

We propose parameterizing the gaze patter