

Streaming Behaviour: Live Streaming as a Paradigm for Multi-view Analysis of Emotional and Social Signals

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All the World (Wide Web)'s a Stage: A Twitch Workshop



Engineering and Physical Sciences
Research Council



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What are we interested in?

Three main stream categories:

- eSports/Mind Sports - e.g. LCS, Overwatch League, Magic: the Gathering
- **Individuals streaming game play sessions**
- IRL channels

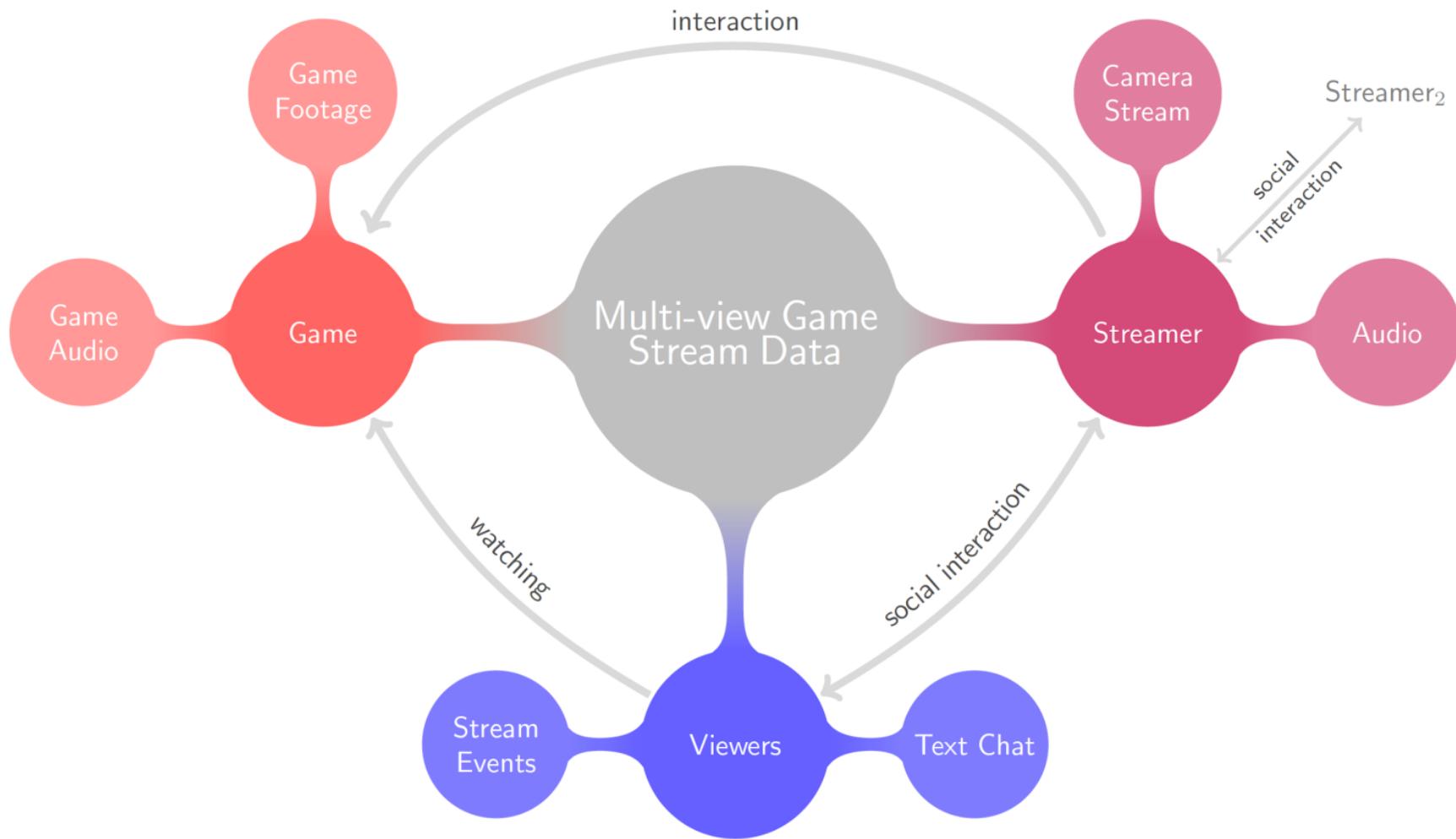
Interested in streamer behaviour, streamer-audience interaction and streamer-streamer interaction

Therefore interested in streamers with webcam overlays and who interact regularly with their audience.

What's in a stream?

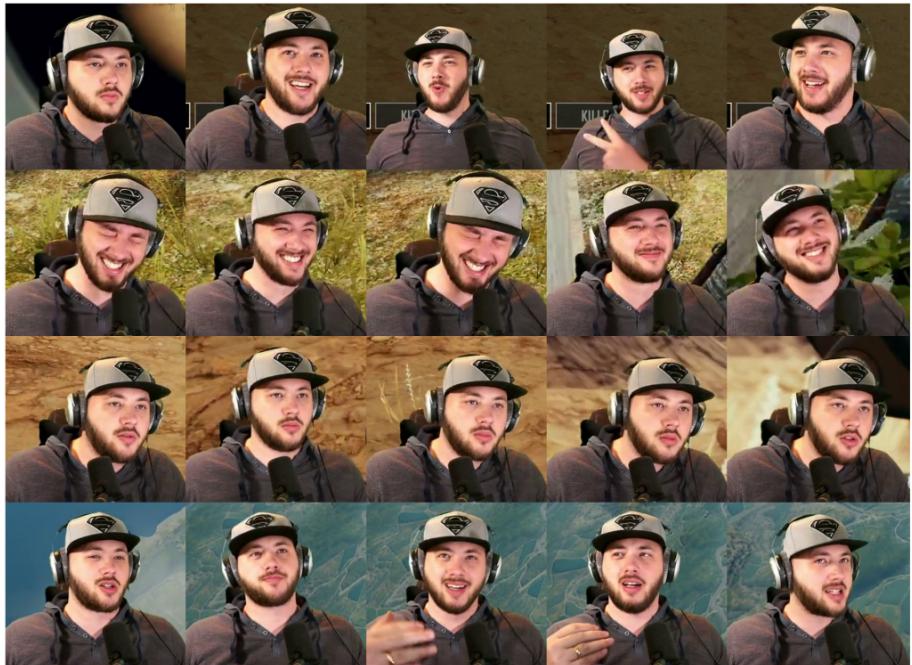


- 47:42 **kimilim2000** : uhh that internet speed is BAD 😞..... I thought Germany was well up there with good internet, in sorry to hear and Hope you can get fiber for a decent prize !
- 47:43 **farmingskill** : you should be able to get 100/100 fiber anywhere in developed europe lol
- 47:47 **aliik6** : morning pawny and chat
- 47:48 **Stormy1991** : @P4wnyhof can u Show ur Sound Settings
- 47:56 **whatsluck** : @flexioso going to try that. thank you 😊
- 48:02 **SentinelUK** : !giveaway
- 48:02 **P4wnyhof** : @SentinelUK, Check our June Giveaway: <http://bit.ly/2J80Cmu>
- 48:03 **daZimi** : Moin @P4wnyhof built your House on Helgoland 😊 so you can defend it 😊
- 48:05 **Visa1223** : sex dungeon 😊
- 48:08 **loqoo_** : @tempeter10 well i'm from belgium and the best upload you can get is only 20 mbit/s



Motivations for modeling streamer affect

- Data-rich environment
 - Webcam, Audio, Game Scene, Chat Logs
- Natural ‘in the wild’ environment
 - Emotions are not posed
- Multi-Streamer streams allow us to model complex behaviours
 - E.g. conflict, agreement and mimicry



Challenges to modeling streamer affect



- Occlusions
 - Hand gestures, web-cam angle, hats etc.
- Data is messy
 - Learning from pixels rather than raw game data
 - Multi-view mean potentially tricky alignments
- How much is affect exaggerated for entertainment?

Current Work - Highlight Detection

How can we model highlights?

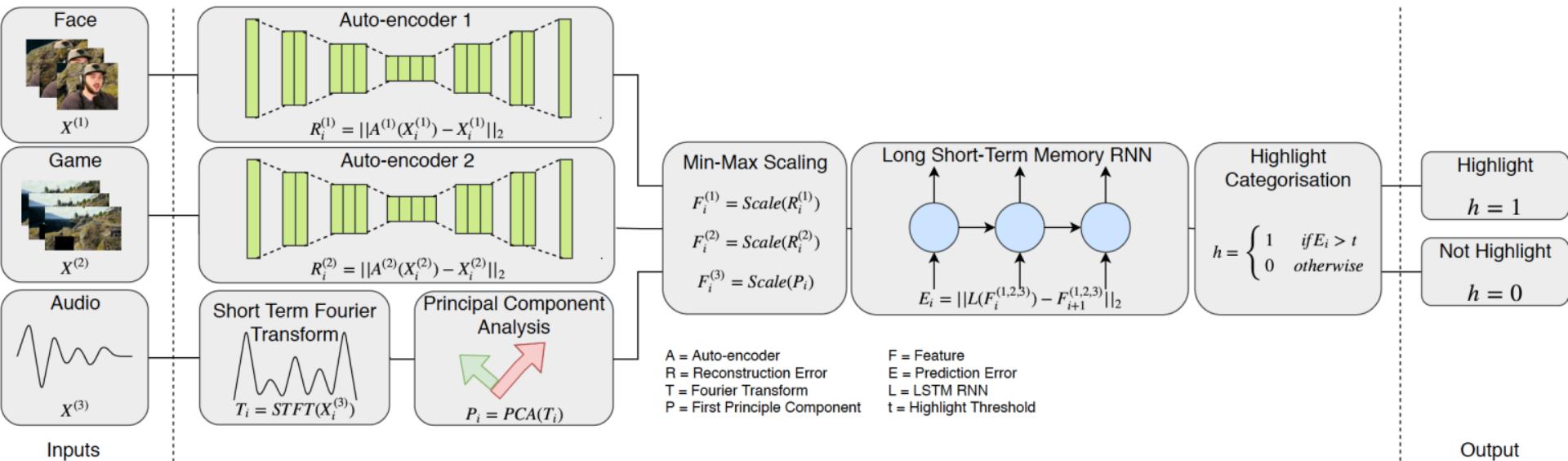
Problems:

- Detecting highlights is difficult as they are subjective and require context
- Computers are bad at context

However:

- Highlights are also novel moments in the stream
- Novelty can be considered a proxy
- Novelty is modelably!

Multi-view model for unsupervised highlight detection



Categorisation

FUNNY



INTERACTION



ACTION



NO HIGHLIGHT



Recap

Video game streaming is an interesting domain for studying social cues and interaction.

This data rich and complex environment allows us to build models on many views

Current work is in Highlight Detection.

Novelty appears to be a reasonable proxy for highlights.

Future work

A larger study is needed:

- More streamers - wider demographic
- More games - wider range of expected reactions

Supervised Learning:

- Supervised learning using an annotated database of streamers
- What is the link between streamer affect and what is happening in the game?
- What is the link between streamer affect and audience comments?

Thank You

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