Dub it

One voice, many languages

Innovation in captioning for performing arts
Challenges

Reinventing captioning system for the stage

Open theater plays to new audiences

Imagine new way to create with caption
Subtitling/over titling
Reinventing captioning system for the stage

Options

Displays  Synchronized broadcast
Subtitling/over titling
Reinventing captioning system for the stage

Displays
Subtitling/over titling
Reinventing captioning system for the stage

Synchronized broadcast with
Speech to text technology
Subtitling/over titling
Reinventing captioning system for the stage

Synchronized broadcast

Translation + cuts = prompts

Actual

Text on stage → Topper – manual sync. → Promts linear sync. → Displays
Subtitling/over titling
Reinventing captioning system for the stage

Synchronized broadcast

Actual

Text on stage → Topper – manual sync. → Promts linear sync. → Displays

Projected

Text on stage → Audio acquisition → Vocal recognition → Prompts dynamic sync. → Displays

Translation + cuts = prompts
Subtitling/over titling
Reinventing captioning system for the stage

Synchronized broadcast

Dynamic syncing / accuracy
Less errors
No black holes
Follow the performance / not the script
Subtitling/over titling
Reinventing captioning system for the stage

Research & development consortium

Associate partners
Subtitling/over titling
Reinventing captioning system for the stage

Artistic crew
Subtitling/over titling
Reinventing captioning system for the stage

Audio acquisition  Vocal recognition engine  Prompts database
Subtitling/over titling
Reinventing captioning system for the stage

Audio acquisition
Localizing speakers
Filtering noises

Vocal recognition engine
Syllabic recognition
Multilingual database

Prompts database
Prompt recognition
Prompt alignment
Subtitling/over titling
Reinventing captioning system for the stage

Audio acquisition
Vocal recognition engine
Prompts database

Localizing speaker
Filtering noises
Syllabic recognition
Multilingual database
Prompt recognition
Prompt alignment

SPIDER
AI System interface
Subtitling/over titling
Reinventing captioning system for the stage

Main technological challenge

Audio acquisition on stage
  • Localizing speakers
  • Filtering noises

Wireless headset microphone
Beamforming microphone array (Microphone network)
Subtitling/over titling
Reinventing captioning system for the stage

Beamforming microphone array
(Microphone network)
Subtitling/over titling
Reinventing captioning system for the stage

Beamforming microphone array
(Microphone network)
Subtitling/over titling
Reinventing captioning system for the stage
Subtitling/over titling
Reinventing captioning system for the stage

Text on stage → Audio acquisition → Vocal recognition → Prompts dynamic sync → Displays
Subtitling/over titling
Reinventing captioning system for the stage

Artistic R&D

TRANSQUINQUENNAL

IDEOOMATIC

A play for 5 actors and a machine
Subtitling/over titling
Reinventing captioning system for the stage

IDEOOMATIC
A play for 5 actors and a machine

IFTT SCENARIO
(NON LINEAR SCRIPT)
**Subtitling/over titling**
Reinventing captioning system for the stage

**IFTT SCENARIO**
(NON LINEAR SCRIPT)

<table>
<thead>
<tr>
<th>Time</th>
<th>Event</th>
<th>Action</th>
<th>Location</th>
<th>Audience</th>
</tr>
</thead>
<tbody>
<tr>
<td>0:00</td>
<td>Act 1</td>
<td>Scene 1</td>
<td>Stage A</td>
<td>PUBLIC</td>
</tr>
<tr>
<td>0:15</td>
<td>Act 1</td>
<td>Scene 2</td>
<td>Stage A</td>
<td>PRIVATE</td>
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<td>0:30</td>
<td>Act 1</td>
<td>Scene 3</td>
<td>Stage A</td>
<td>PUBLIC</td>
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<td>0:45</td>
<td>Act 1</td>
<td>Scene 4</td>
<td>Stage A</td>
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<tr>
<td>1:15</td>
<td>Act 1</td>
<td>Scene 6</td>
<td>Stage A</td>
<td>PRIVATE</td>
</tr>
</tbody>
</table>

*Notes:
1. Scene 1: Character A speaks to Character B.
2. Scene 2: Character C interacts with Scene 1.
3. Scene 3: Character D responds to Scene 2.*
Subtitling/over titling
Reinventing captioning system for the stage

IDEOMATIC
A play for 5 actors

A   B   C   D   E
Subtitling/over titling
Reinventing captioning system for the stage

IDEOMATIC
A play for 5 actors
Speaking different languages
Subtitling/over titling
Reinventing captioning system for the stage

IDEOMATIC
A play for 5 actors
Speaking different languages

And a machine
Giving instructions

A B C D E
Planning

May 2017
First beamforming tests with actors & existing technologies

June 2017
OPEN LAB Craiova
Analyzing first tests
+
finalizing architecture of the prototype

November 2017
OPEN LAB Liege
First demonstrator in artistic tryout

January - April 2018
Implementation of the prototype within IDEOMATIC

June 2018
“Prototypic” Premiere of IDEOMATIC