



L-Università ta' Malta
Faculty of Information &
Communication Technology

Department
of Artificial
Intelligence

Accurate Name Extraction from News Video Graphics

Andrea Filiberto Lucas | B.Sc. ICT (AI) Dissertation
Supervised by Dr. Dylan Seychell

Quick Introduction...

Goal:

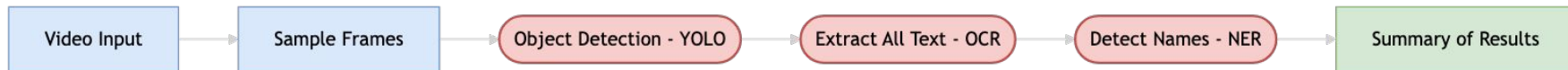
Extract names appearing inside graphical elements (*like Lower Thirds, Breaking News banners*) in news videos.

Challenges:

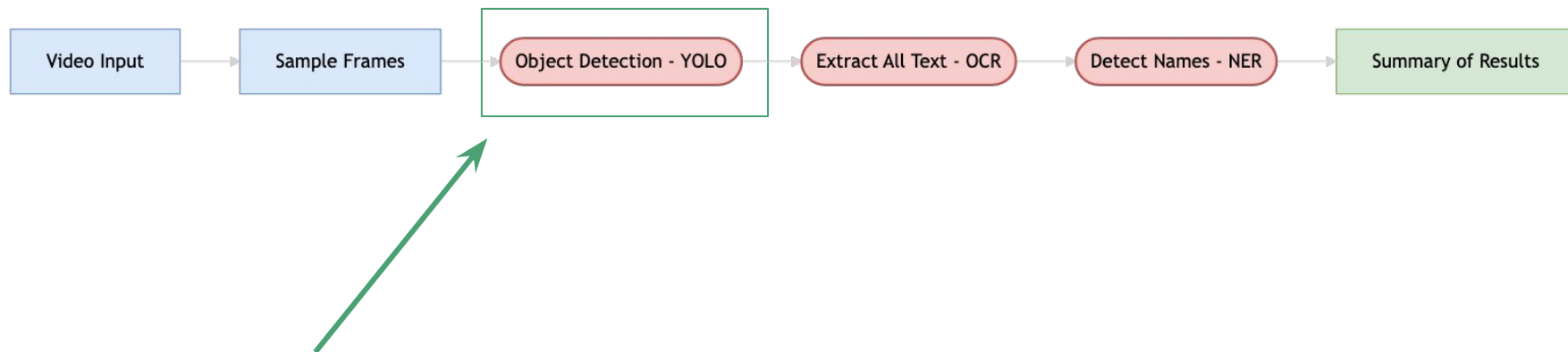
Names are hidden inside graphics, not spoken or in subtitles.

Requires visual detection and text analysis.

The Accurate Name Extraction Pipeline (ANEP)



The Accurate Name Extraction Pipeline (ANEP)



Object Detection

Model used: YOLOv12

Custom-trained on News Graphics Dataset (NGD).



Why is Object Detection Important?



- Finds only the relevant parts (graphics)
- Avoids processing the whole frame unnecessarily
- Improves accuracy of text extraction
- Reduces noise in the final name list

Step: 1 - Sample Frame

Original Test Image



Step: 2 - Object Detection

Original Test Image



Predicted Image with Bounding Boxes



Step: 3 - Cropping ROIs

Original Test Image



Predicted Image with Bounding Boxes



Lower Third Graphic - Conf: 0.96



Digital On-Screen Graphic - Conf: 0.91



Digital On-Screen Graphic - Conf: 0.86



Step: 4 - Final Output

Original Test Image



Predicted Image with Bounding Boxes



Lower Third Graphic - Conf: 0.96



Digital On-Screen Graphic - Conf: 0.91

Read the full story on DailyMail.com

Digital On-Screen Graphic - Conf: 0.86



Accurate-Name-Extraction -

```
15 {  
16   "name": "Ed Markey",  
17   "first_appearance": "00:00:10",  
18   "last_appearance": "00:00:54",  
19   "count": 14  
20 }
```

Original Test Image



Predicted Image with Bounding Boxes



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andrea.f.lucas.22@um.edu.mt

