

# Dynamic Face Video Segmentation via Reinforcement Learning: Supplementary Material

In the supplemental material, we provide: 1) visualisation of additional results on Cityscapes dataset [1], and 2) video results of our method on 300VW [2] (please see attached mp4 files).

We visualise the distribution of Consecutive Key Intervals (CKI) based on the keys selected by all evaluated methods on Cityscapes dataset. Without loss of generality, Fig. 1 and 2 show the density curves plotted at average key interval (AKI)=15 and AKI=37, respectively. Similar to the result on 300VW, we see that more neighbouring keys selected by our method are further apart from each other, indicating our method can also better capture and exploit the video dynamics in Cityscapes.

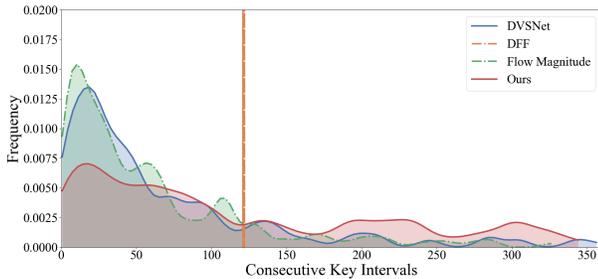


Figure 1: The histogram plot for Consecutive Key Intervals of different methods on Cityscapes (AKI=15).

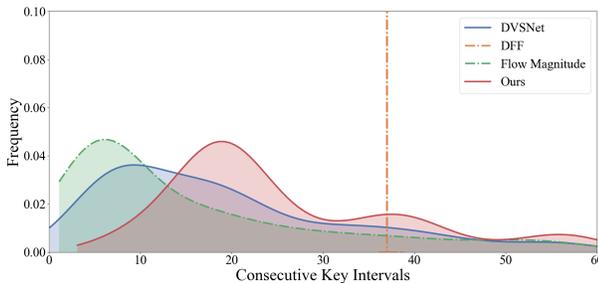


Figure 2: The histogram plot for Consecutive Key Intervals of different methods on Cityscapes (AKI=37).

In Fig. 3, we plot the segmentation masks produced by different methods on several annotated (the 20<sup>th</sup>) frames of Cityscapes validation snippets. We can see that the results given by our method are also of better visual quality than that of others. This further demonstrates the effectiveness of the proposed reinforcement-based key scheduler.

## References

- [1] Marius Cordts, Mohamed Omran, Sebastian Ramos, Timo Rehfeld, Markus Enzweiler, Rodrigo Benenson, Uwe Franke, Stefan Roth, and Bernt Schiele. The cityscapes dataset for semantic urban scene understanding. In *Proceedings of the IEEE conference on computer vision and pattern recognition*, pages 3213–3223, 2016.
- [2] Jie Shen, Stefanos Zafeiriou, Grigoris G Chrysos, Jean Kossai, Georgios Tzimiropoulos, and Maja Pantic. The first facial landmark tracking in-the-wild challenge: Benchmark and results. In *Proceedings of the IEEE International Conference on Computer Vision Workshops*, pages 50–58, 2015.

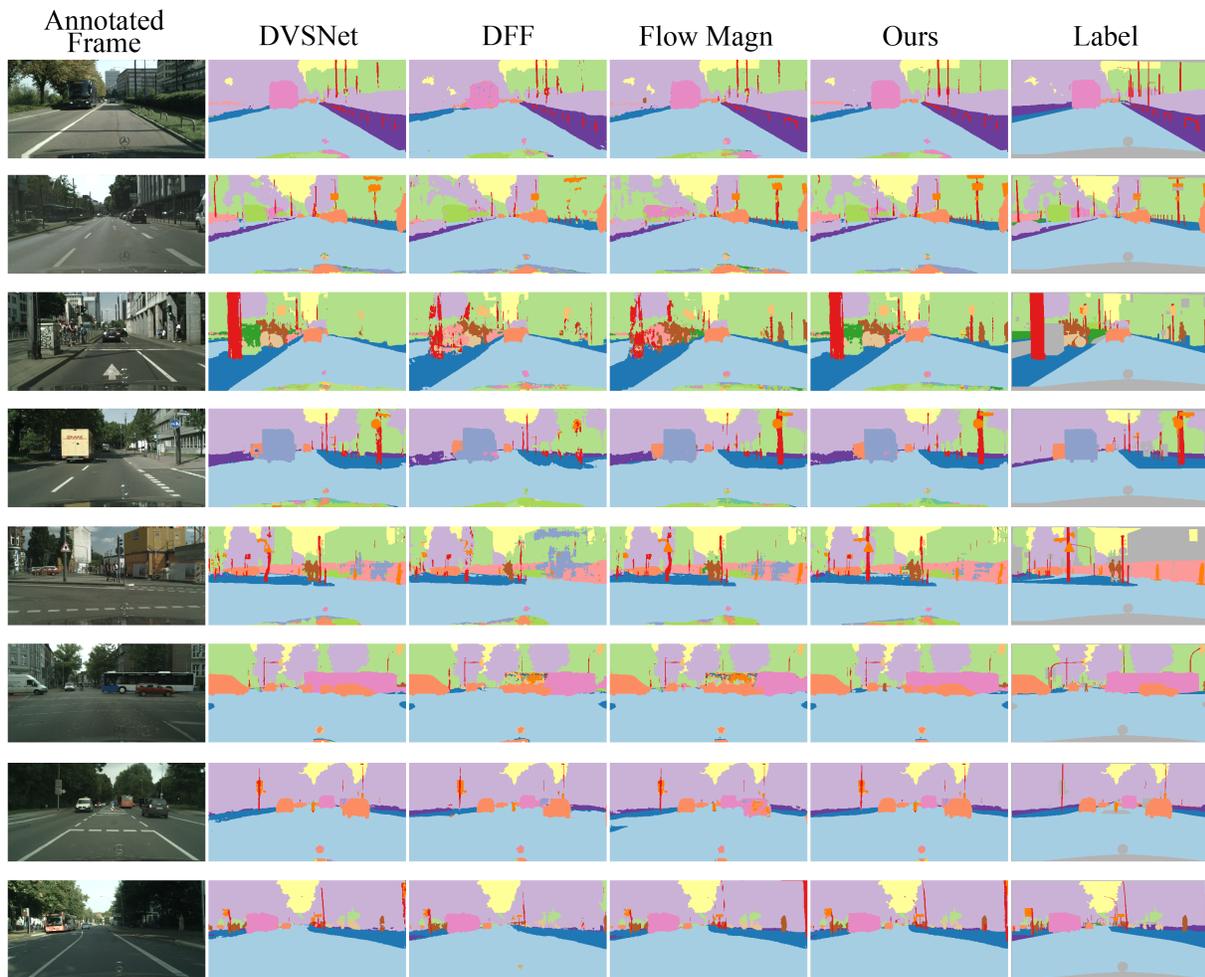


Figure 3: The segmentation masks generated by different methods for the annotated frame on Cityscapes (AKI=15)