Signing at Scale: Learning to Co-Articulate Signs for Large-Scale Photo-Realistic Sign Language Production: Supplementary Materials

meineDGS (mDGS) Translation Protocol

In this appendix, we provide further details of our released translation protocols on the meineDGS (mDGS) dataset [2]. The public mDGS linguistic corpus can be accessed at https://www.sign-lang.uni-hamburg.de/meinedgs/, containing 330 sequences of free-flowing discourse between two deaf participants, with each around 10 minutes in length. Additionally, detailed spoken language transcripts, frame-level gloss annotations and 2D pose estimation sequences [1] are provided. Discourse is centered around a wide variety of topics, age groups and format, with further details available on the mDGS website.

To adapt the mDGS corpus for use as a translation dataset, we segment the free-flowing discourse data into 40,230 segments of German sentences, sign gloss translations and respective sign language videos. Sequence segmentation was performed using spoken language sentence boundaries, with corresponding frame boundaries provided. The title of each segment (e.g. 1583882A-X) contains the title of the original discourse sequence as given in the *Transcript* column (e.g. 1583882), the corresponding participant camera (A or B) and the position of the extracted segment in the original discourse sequence (a numerical value X).

Table 1 and 2 show detailed statistics of the mDGS-V and mDGS protocols, respectively. Gloss variants used in mDGS-V give distinction between sign variants, with each containing the same meaning but with differing motion. We chose to retain these variants to provide more challenging baselines for the commu-

	Sign Gloss			German		
	Train	Dev	Test	Train	Dev	Test
segments	40,230	4,996	4,977	←———— same		
frames	6,146,153	764,451	758,883	←———— same		
vocab.	10,042	4,644	4,620	18,680	6,224	6,231
tot. words	215,392	26,855	26,969	389,427	48,376	48,551
tot. OOVs	-	371	339	-	1,103	1,171
singletons	2,681	-	-	8,909	-	-

Table 1. Key statistics of the meineDGS-Variants (mDGS-V) dataset split.

	Sign Gloss			German		
	Train	Dev	Test	Train	Dev	Test
segments	40,230	4,996	4,977	←———— same		
frames	6,146,153	764,451	758,883	←———— same		
vocab.	4,337	2,490	2,487	18,680	6,224	6,231
tot. words	215,392	26,855	26,969	389,427	48,376	48,551
tot. OOVs	-	118	112	-	1,103	1,171
singletons	778	-	-	8,909	-	-

Table 2. Key statistics of the meineDGS (mDGS) dataset split.

nity. Further public annotation conventions are outlined in [3], which we follow. Additionally, gloss frame alignments are provided as *GLOSS/start-frame/stop-frame* (e.g. BUCHSTABE1/11/34). The translation protocols are publicly available at https://github.com/BenSaunders27/meineDGS-Translation-Protocols, detailing *filename*, *camera*, *ger_text*, *gloss*, *start_time* and *stop_time*.

To use the mDGS dataset for computational research, a licence must be obtained from the University of Hamburg[1]. Release of these protocols does not imply permission for use or provide a license. Written permission is required from the dataset owner. Please adhere to the data ownership policies and ensure you have the correct rights of use.

References

[1] Zhe Cao, Gines Hidalgo, Tomas Simon, Shih-En Wei, and Yaser Sheikh. OpenPose: Realtime Multi-Person 2D Pose Estimation using Part Affinity Fields. In *Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)*, 2017. 1

[2] Thomas Hanke, Lutz König, Sven Wagner, and Silke Matthes. DGS Corpus & Dicta-Sign: The Hamburg Studio Setup. In *4th Workshop on the Representation and Processing of Sign Languages: Corpora and Sign Language Technologies (CSLT 2010), Valletta, Malta*, 2010. 1

[3] Reiner Konrad, Thomas Hanke, Gabriele Langer, Susanne König, Lutz König, Rie Nishio, and Anja Regen. Public DGS Corpus: Annotation Conventions. Technical report, Project Note AP03-2018-01, DGS-Korpus project, IDGS, Hamburg University, 2018. 1

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[1]https://www.sign-lang.uni-hamburg.de/meinedgs/