Learning a metric embedding of hand poses with Siamese networks for low-shot learning in fingerspelling recognition

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We investigate a method for signer-independent fingerspelling recognition based on learning a metric embedding of hand poses using siamese networks and using the embedding to construct a low-shot classifier. We present an efficient neural network for 2D hand pose estimation and show how to use transfer learning to learn an embedding of hand poses on a much smaller fingerspelling dataset than would be necessary to train the full model from scratch. We find that our method successfully learns a metric embedding of hand poses, but only reaches comparable levels of accuracy to other methods for cross-signer fingerspelling recognition reported in the literature.