Novelty Assessment Report

Paper: BANZ-FS: BANZSL Fingerspelling Dataset
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Abstract

Fingerspelling plays a vital role in sign languages, particularly for conveying names, technical terms, and words not found in the standard lexicon. However, evaluation of two-handed fingerspelling detection and recognition is rarely addressed in existing sign language datasets—particularly for BANZSL (British, Australian, and New Zealand Sign Language), which share a common two-handed manual alphabet. To bridge this gap, we curate a large-scale dataset, dubbed BANZ-FS, focused on BANZSL fingerspelling in both controlled and real-world environments. Our dataset is compiled from three distinct sources: (1) live sign language interpretation in news broadcasts, (2) controlled laboratory recordings, and (3) diary vlogs from online platforms and social media. This composition enables BANZ-FS to capture variations in signing tempos and fluency across diverse signers and contents. Each instance in BANZ-FS is carefully annotated with multi-level alignment: video ↔ subtitles, video ↔ fingerspelled letters, and video ↔ target lexicons. In total, BANZ-FS includes over 35,000 video-aligned fingerspelling instances. Importantly, BANZ-FS highlights the unique linguistic and visual challenges posed by two-handed fingerspelling, including handshape coarticulation, self-occlusion, intra-letter variation, and rapid inter-letter transitions. We benchmark state-of-the-art models on the key tasks, including fingerspelling detection, isolated fingerspelling recognition, and fingerspelling recognition in context. Experimental results show that BANZ-FS presents substantial challenges while offering rich opportunities for BANZSL understanding and broader sign language technology. The dataset and benchmarks are available at BANZ-FS.

Core Task Landscape

This paper addresses: **Two-Handed Fingerspelling Detection and Recognition in Sign Language**

A total of **35 papers** were analyzed and organized into a taxonomy with **19 categories**.

Taxonomy Overview

The research landscape has been organized into the following main categories:

- **Recognition Methods and Architectures**
- **Datasets and Benchmarks**
- **Weakly-Supervised and Automatic Annotation**
- **Language-Specific Recognition Systems**
- **Applications and Learning Tools**
- **Linguistic and Cognitive Studies**
- **Animation and Synthesis**
- **Non-Sign Detection and Robustness**

Complete Taxonomy Tree

- Two-Handed Fingerspelling Detection and Recognition in Sign Language Survey Taxonomy
- Recognition Methods and Architectures
  - Deep Learning-Based Recognition
  - CNN-Based Static Gesture Recognition (2 papers)
    - [4] Recognition of JSL finger spelling using convolutional neural networks (Hana Hosoe, 2017) View paper
    - [32] Sign Language Recognition using Hand Gestures (Pravin Baban More, 2021) View paper
  - Temporal Sequence Modeling (2 papers)
    - [23] Human Joint Coordinate Sequencing in Video-Based Thai Finger Spelling Recognition (Wuttichai Vijitkunsawat, 2024) View paper
    - [31] Multi-Stroke Thai Finger-Spelling Sign Language Recognition System with Deep Learning (Thongpan Pariwat, 2021) View paper
  - Real-Time Neural Recognition Systems (1 papers)
    - [13] Neural Network-based Real-Time Recognition of American Sign Language Finger-Spelled Gestures: Bridging Communication Gaps (Soumya Ashwath, 2023) View paper
  - Traditional Computer Vision Approaches
  - Contour and Shape-Based Recognition (3 papers)
    - [6] Recognition of complex static hand gestures by using the wristbandâ□□based contour features (Donqâ□□Liang Lee, 2018) View paper
    - [18] A framework for live and cross platform fingerspelling recognition using modified shape matrix variants on depth silhouettes (Lalit Kane, 2015) View paper
    - [25] Real-time fingerspelling recognition system design based on RGB-D image information (Kuan-Yu Chou, 2014) View paper
  - Skin Color and Texture-Based Segmentation (2 papers)
    - [17] Sign Language Recognition System Sign Wave (Abhishek Singh Karki, 2025) View paper
    - [21] User-independent system for sign language finger spelling recognition (Djamila Dahmani, 2014) View paper
  - Multimodal and Fusion-Based Recognition (3 papers)

- [2] Deep multimodal-based finger spelling recognition for Thai sign language: a new benchmark and model composition (Wuttichai Vijitkunsawat, 2024) View paper
- [3] Two-hand static and dynamic Arabic sign language recognition using keypoints and shape descriptors with attention-driven feature fusion (Z Kausar, 2025) View paper
- [8] Deep multimodal-based recognition of thai finger spelling with two-handed postures (Wuttichai Vijitkunsawat, 2024) View paper
- Sensor-Based and Wearable Recognition (4 papers)
- [7] Automatic recognition of the American sign language fingerspelling alphabet to assist people living with speech or hearing impairments (Luis Quesada, 2017) View paper
- [19] Wearable Translator of the Dactylogical Alphabet of the Honduran Sign Language (Mirna Maria Chavez Cerrato, 2023) View paper
- [26] Gesture Recognition Glove For American Sign Language Using Accelerometers (Swayam Sa, 2023) View paper
- [33] Automated Sign Language Alphabet Detection (Ashwin van der Merwe, 2021) View paper

- Datasets and Benchmarks
  - Two-Handed Fingerspelling Datasets ★ (1 papers)
  - [0] BANZ-FS: BANZSL Fingerspelling Dataset (Anon et al., 2026) View paper
  - Language-Specific Alphabet Datasets (2 papers)
  - [27] Bukva: Russian Sign Language Alphabet (Kvanchiani, 2024) View paper
  - [29] HaGRIDv2: 1M Images for Static and Dynamic Hand Gesture Recognition (Nagaev, 2024) View paper
- Weakly-Supervised and Automatic Annotation (2 papers)
  - [1] Weakly-supervised fingerspelling recognition in british sign language videos (Prajwal, 2022) View paper
- Language-Specific Recognition Systems
  - British Sign Language Fingerspelling (3 papers)
  - [9] Recognition of two hand gestures of word in British sign language (BSL) (Pingale Prerna Rambhau, 2013) View paper
  - [10] Automatic recognition of fingerspelled words in british sign language (Stephan Liwicki, 2009) View paper
  - [35] A Real Time Two Hand Gesture Recognition System Using Motion Static and Dynamic Image in British Sign (PP Rambhau, 2015) View paper
  - Indian Sign Language Recognition (1 papers)
  - [15] A Deep Neural Network Framework for Dynamic Two-Handed Indian Sign Language Recognition in Hearing and Speech-Impaired Communities. (Vaidhya Govindharajalu Kaliyaperumal, 2025) View paper
- Applications and Learning Tools
  - Educational and Training Systems (2 papers)
  - [20] Development of learning support equipment for sign language and fingerspelling by mixed reality (Natsuhiko Hirabayashi, 2019) View paper
  - [24] A Review on Sign Language Recognition and Learning System (Akhilesh K.B., 2024) View paper
  - Communication Assistance Tools (1 papers)
  - [22] Hand Gesture Recognition with ConvNets for School-Aged Children to Learn Basic Arithmetic Operations (Alvaro Teran-Quezada, 2022) View paper
- Linguistic and Cognitive Studies
  - Phonetic and Phonological Analysis (2 papers)
  - [14] Fingerspelling: Beyond handshape sequences (J Keane, 2016) View paper
  - [30] The phonetics and phonology of TÄ°D (Turkish Sign Language) bimanual alphabet (O Kubus, 2011) View paper
  - Learning and Perception Studies (1 papers)
  - [28] The difficulties of learning fingerspelling: an experimental investigation with hearing adult learners (L Shipgood, 1995) View paper
  - Morphological and Lexical Integration (2 papers)
  - [11] Derivation in Catalan Sign Language (LSC) Towards a morphology of LSC (VillaÃ©cija, 2024) View paper
  - [12] Blending in spoken/written languages and in sign languages (R Brdar-SzabÃ³, 2024) View paper
- Animation and Synthesis (1 papers)
  - [5] Improving realism in automated fingerspelling of American sign language (Souad Baowidan, 2021) View paper
- Non-Sign Detection and Robustness (1 papers)
  - [34] Automatic Hand Sign Recognition: Identify Unusuality through Latent Cognizance (Pisit Nakjai, 2021) View paper

Narrative

Core task: two-handed fingerspelling detection and recognition in sign language. The field organizes around several complementary branches. Recognition Methods and Architectures explores neural network designs and feature extraction strategies, ranging from early CNN approaches like JSL CNN Recognition[4] to more recent transformer-based models. Datasets and Benchmarks provides the empirical foundation, with resources spanning multiple sign languages—such as BSL Two Hand[9], Thai Two Handed[8], and Arabic Sign Keypoints[3]—that enable systematic evaluation. Weakly-Supervised and Automatic Annotation addresses the challenge of scaling data collection when manual labeling is costly, exemplified by Weakly Supervised BSL[1]. Language-Specific Recognition Systems tailors methods to individual sign languages, while Applications and Learning Tools translate research into educational platforms like Mixed Reality Learning[20]. Linguistic and Cognitive Studies examines how signers produce and perceive fingerspelling, Animation and Synthesis generates realistic signing avatars, and Non-Sign Detection and Robustness ensures systems handle real-world variability.

A particularly active line of work focuses on building high-quality two-handed fingerspelling datasets, which remain scarce compared to one-handed resources. The BANZ Fingerspelling Dataset[0] contributes to this effort by providing annotated examples for a less-studied sign language, joining a small handful of similar benchmarks like Thai Fingerspelling Benchmark[2] and Turkish Bimanual Alphabet[30]. These datasets enable researchers to move beyond American Sign Language and explore cross-linguistic variation in two-handed alphabets. Meanwhile, weakly-supervised methods such as Weakly Supervised BSL[16] offer a complementary strategy for expanding coverage when full annotation is impractical. The original paper sits squarely within the Datasets and Benchmarks branch, addressing the fundamental need for diverse, well-annotated corpora that can support both language-specific recognition systems and broader studies of fingerspelling across different signing communities.

Related Works in Same Category

No sibling papers were found in the same taxonomy leaf. A taxonomy-subtopic-level comparison will be produced instead.

Taxonomy-Level Summary

Both subtopics focus on datasets for fingerspelling recognition in sign language, emphasizing the importance of specialized data collection for alphabet recognition tasks. The original leaf specifically targets two-handed manual alphabets with multi-level annotations, while the sibling focuses on language-specific alphabet datasets that may encompass various national sign languages. Both exclude general sign language corpora and broader gesture recognition datasets, maintaining focus on the fingerspelling alphabet domain.

Similarities: - Both address fingerspelling alphabet datasets rather than full sign language vocabularies - Both exclude general sign language corpora and broader gesture recognition datasets - Both emphasize the importance of recording conditions and dataset design for alphabet recognition - Both serve the core task of fingerspelling detection and recognition

Differences: - Original leaf specifically focuses on two-handed manual alphabets (e.g., British Sign Language), while sibling encompasses any language-specific alphabet including one-handed systems - Original leaf explicitly emphasizes multi-level annotations as a defining feature, while sibling focuses on language specificity - Original leaf excludes one-handed alphabet datasets, while sibling may include them if language-specific - Sibling explicitly mentions both controlled and naturalistic recording settings as a categorization dimension

Suggested Search Directions: - Cross-lingual fingerspelling datasets that cover multiple sign language alphabets - Datasets comparing one-handed vs two-handed fingerspelling systems - Annotation schemes and standards for fingerspelling datasets across different manual alphabets

Sibling Subtopics

- **Language-Specific Alphabet Datasets** (leaves: 1, papers: 2)
- Scope: Datasets curated for specific national sign language alphabets with controlled or naturalistic recording settings.
- Exclude: Excludes multi-language datasets and general gesture recognition corpora; see sibling categories.

Contributions Analysis

This paper presents **3 main contributions**, each analyzed against relevant prior work:

Contribution 1: BANZ-FS: Large-scale BANZSL fingerspelling dataset

Description: The authors introduce BANZ-FS, a dataset containing over 35,000 video-aligned fingerspelling instances for British, Australian, and New Zealand Sign Language. The dataset is compiled from three sources: news broadcasts, laboratory recordings, and online vlogs, capturing diverse signing tempos and contexts with multi-level annotations including video-subtitle alignment, fingerspelled letters, and target lexicons.

This contribution was assessed against **10 related papers** from the literature. Papers with potential prior art are analyzed in detail with textual evidence; others receive brief assessments.

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1. HandReader: Advanced Techniques for Efficient Fingerspelling Recognition

URL: View paper

Brief Assessment

HandReader Techniques[41] focuses on American and Russian fingerspelling datasets (ChicagoFSWild, ChicagoFSWild+, Znaki), not BANZSL (British, Australian, New Zealand Sign Language). The candidate does not address two-handed BANZSL fingerspelling systems or challenge the novelty of BANZ-FS.

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2. AzSLD: Azerbaijani sign language dataset for fingerspelling, word, and sentence translation with baseline software

URL: View paper

Brief Assessment

Azerbaijani Sign Dataset[40] focuses on Azerbaijani Sign Language with fingerspelling alphabet, words, and sentences, whereas BANZ-FS specifically targets the two-handed BANZSL (British, Australian, New Zealand) fingerspelling system with over 35,000 instances from diverse sources including news broadcasts and vlogs. These are distinct sign language systems serving different linguistic communities.

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3. American sign language fingerspelling recognition in the wild

URL: View paper

Brief Assessment

ASL Wild Recognition[43] focuses on American Sign Language (single-handed fingerspelling) collected from online videos, while BANZ-FS addresses British, Australian, and New Zealand Sign Language (two-handed fingerspelling systems). The datasets target fundamentally different sign language families with distinct manual alphabets and visual challenges.

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4. TFRS: Thai finger-spelling sign language recognition system

URL: View paper

Brief Assessment

Thai Fingerspelling System[39] focuses on Thai sign language fingerspelling using data gloves and motion trackers, not on creating a large-scale video-based dataset for BANZSL (British, Australian, and New Zealand Sign Language). The technical approaches, sign language systems, and data collection methodologies are fundamentally different.

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5. Deep multimodal-based finger spelling recognition for Thai sign language: a new benchmark and model composition

URL: View paper

Brief Assessment

Thai Fingerspelling Benchmark[2] focuses on Thai sign language fingerspelling with multimodal data, while BANZ-FS addresses British, Australian, and New Zealand Sign Language (BANZSL) with two-handed systems. These are distinct sign language families with different manual alphabets and linguistic structures.

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6. Spelling it out: Real-time ASL fingerspelling recognition

URL: View paper

Brief Assessment

Real Time ASL[44] focuses on American Sign Language (ASL) fingerspelling recognition using a Kinect device with a dataset of ~500 samples per sign from 4 users. The original paper introduces BANZ-FS with over 35,000 instances for British, Australian, and New Zealand Sign Language from diverse sources. These are fundamentally different sign language systems and dataset scales.

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7. TLFS23 Tamil language fingerspelling dataset

URL: View paper

Brief Assessment

Tamil Fingerspelling Dataset[37] focuses exclusively on static Tamil character images (248 classes, 255,155 images) for a completely different sign language system, whereas BANZ-FS addresses video-based two-handed BANZSL fingerspelling with temporal dynamics and continuous recognition tasks.

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8. Recent advances of deep learning for sign language recognition

URL: View paper

Brief Assessment

Deep Learning Advances[42] is a survey paper that reviews existing sign language recognition methodologies and datasets. It does not present a specific fingerspelling dataset that would challenge the novelty of BANZ-FS's large-scale, multi-source BANZSL fingerspelling collection with over 35,000 instances.

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9. Fingerspelling within sign language translation

URL: View paper

Brief Assessment

Fingerspelling in Translation[36] focuses on American Sign Language (ASL) translation with character-level tokenization improvements, not on creating large-scale BANZSL fingerspelling datasets. The candidate addresses ASL-to-English translation quality for fingerspelling within sentences, while the original introduces a novel two-handed BANZSL fingerspelling dataset with multi-level annotations across diverse sources.

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10. Deep motion templates and extreme learning machine for sign language recognition

URL: View paper

Brief Assessment

Deep Motion Templates[38] focuses on sign language recognition using motion templates and extreme learning machines, not on dataset creation. The candidate does not present a fingerspelling dataset or challenge the novelty of BANZ-FS.

Contribution 2: Multi-level annotation protocol for fingerspelling tasks

Description: The authors develop a comprehensive annotation framework that includes temporal boundaries of sign video clips, temporal boundaries of fingerspellings, lexical forms of fingerspellings, and English transcriptions. This protocol supports multiple fingerspelling-related tasks and explicitly annotates linguistic phenomena such as abbreviations, acronyms, misspellings, and inline corrections.

This contribution was assessed against **10 related papers** from the literature. Papers with potential prior art are analyzed in detail with textual evidence; others receive brief assessments.

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1. Documentary and corpus approaches to sign language research

URL: View paper

Brief Assessment

Documentary Corpus Approaches[50] discusses general corpus annotation approaches for sign language research, but does not present a specific multi-level annotation protocol for fingerspelling detection and recognition tasks as described in the original paper.

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2. Arabic Sign Language Recognition: A Multimodal Systematic Review, Taxonomy, and Benchmark Recommendations

URL: View paper

Brief Assessment

Arabic Multimodal Review[51] is a systematic review paper focused on Arabic Sign Language recognition across multiple modalities. It does not present a novel annotation protocol for fingerspelling, but rather surveys existing work in Arabic SL. The original paper's multi-level annotation framework for BANZ-FS fingerspelling (temporal boundaries, lexical forms, linguistic phenomena) remains distinct.

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3. A multi-class pattern recognition system for practical finger spelling translation

URL: View paper

Brief Assessment

Multi Class Pattern[49] focuses on a glove-based recognition system for isolated ASL alphabet letters using a hierarchical classifier. It does not address multi-level annotation protocols, temporal boundary annotation, or linguistic phenomena documentation for fingerspelling datasets.

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4. Vision-Based recognition of fingerspelled acronyms using hierarchical temporal memory

URL: View paper

Brief Assessment

Hierarchical Temporal Memory[53] focuses on vision-based recognition of fingerspelled acronyms using HTM architecture, not on developing annotation protocols for fingerspelling datasets. The candidate does not address multi-level annotation frameworks or linguistic phenomena annotation.

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5. Simultaneous spotting of signs and fingerspellings based on hierarchical conditional random fields and boostmap embeddings

URL: View paper

Brief Assessment

Hierarchical CRF Spotting[52] focuses on sign and fingerspelling segmentation/classification using CRF models, not on developing comprehensive multi-level annotation protocols. The candidate's limited context does not describe annotation frameworks or linguistic phenomena documentation.

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6. Point-Supervised Japanese Fingerspelling Localization via HR-Pro and Contrastive Learning

URL: View paper

Brief Assessment

Japanese Point Supervised[47] focuses on point-level temporal annotations for Japanese syllabic fingerspelling localization, not multi-level linguistic annotation protocols. The candidate does not address annotation of linguistic phenomena like abbreviations, acronyms, or misspellings.

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7. Public DGS Corpus: Annotation Conventions / Ã□ffentliches DGS-Korpus: Annotationskonventionen

URL: View paper

Brief Assessment

DGS Corpus Conventions[54] focuses on general sign language annotation conventions including glossing and segmentation for German Sign Language (DGS), whereas the original paper develops a specific multi-level protocol explicitly designed for fingerspelling detection and recognition tasks in BANZSL with temporal boundaries, lexical forms, and linguistic phenomena annotations.

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8. Understanding vision-based continuous sign language recognition

URL: View paper

Brief Assessment

Continuous Sign Understanding[45] focuses on hierarchical frameworks for sign and fingerspelling identification from continuous utterances, but does not describe a multi-level annotation protocol with temporal boundaries, lexical forms, and linguistic phenomena annotations as proposed in the original paper.

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9. Finger spelling recognition using depth information and support vector machine

URL: View paper

Brief Assessment

Depth SVM Recognition[48] focuses on depth-based hand gesture recognition using SVM classifiers, not on annotation protocols or linguistic phenomena in fingerspelling datasets.

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10. Thai fingerspelling recognition using hand landmark clustering

URL: View paper

Brief Assessment

Thai Landmark Clustering[46] focuses on Thai fingerspelling recognition using hand landmarks and two-level classification for similar gestures. It does not describe a multi-level annotation protocol for temporal boundaries, lexical forms, or linguistic phenomena like abbreviations and misspellings.

Contribution 3: Benchmark evaluation of fingerspelling recognition methods

Description: The authors establish comprehensive benchmarks for fingerspelling detection, isolated fingerspelling recognition, and fingerspelling recognition in context using publicly available state-of-the-art models. The experimental results demonstrate that BANZ-FS poses significant challenges to existing methods while providing a platform for evaluating two-handed fingerspelling understanding.

This contribution was assessed against **10 related papers** from the literature. Papers with potential prior art are analyzed in detail with textual evidence; others receive brief assessments.

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1. LSE-FS-UVigo Dataset and Keypoint-Based Fingerspelling Recognition

URL: View paper

Brief Assessment

LSE Keypoint Recognition[62] focuses on Spanish Sign Language (LSE) fingerspelling using keypoint-based methods, while the original paper addresses BANZSL (British, Australian, and New Zealand Sign Language) two-handed fingerspelling with comprehensive detection, isolated recognition, and in-context recognition tasks across multiple data sources.

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2. Seeing in 2d, thinking in 3d: 3d hand mesh-guided feature learning for continuous fingerspelling

URL: View paper

Brief Assessment

3D Mesh Guided[59] focuses on continuous fingerspelling recognition using 3D hand mesh-guided feature learning, not on establishing comprehensive benchmarks for fingerspelling detection and recognition tasks across multiple datasets as the original paper does.

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3. Deep multimodal-based finger spelling recognition for Thai sign language: a new benchmark and model composition

URL: View paper

Brief Assessment

Thai Fingerspelling Benchmark[2] evaluates Thai sign language recognition systems, whereas BANZ-FS benchmarks focus on BANZSL-specific challenges like two-handed fingerspelling, self-occlusion, and coarticulation unique to that language family.

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4. Real-Time Sign Language Fingerspelling Recognition System Using 2D Deep CNN with Two-Stream Feature Extraction Approach.

URL: View paper

Brief Assessment

Two Stream CNN[61] focuses on general sign language gesture recognition using CNNs for real-time interpretation, not specifically on fingerspelling detection, isolated fingerspelling recognition, or fingerspelling recognition in context as benchmarked in the original paper.

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5. A convolutional neural network to classify American Sign Language fingerspelling from depth and colour images

URL: View paper

Brief Assessment

CNN Depth Color[60] focuses on developing a CNN classifier for isolated ASL fingerspelling images using depth and color data, not on establishing comprehensive benchmarks across multiple tasks (detection, isolated recognition, recognition in context) for two-handed BANZ-FS fingerspelling as the original paper does.

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6. Fingerspelling detection in american sign language

URL: View paper

Prior Art Analysis

ASL Fingerspelling Detection[55] demonstrates that comprehensive benchmark evaluation of fingerspelling detection and recognition methods was already established prior to the ORIGINAL paper. The candidate paper proposes multiple evaluation metrics (AP@IOU, AP@ACC, MSA) specifically designed for fingerspelling detection and recognition tasks, and benchmarks multiple baseline models on the ChicagoFSWild datasets. The candidate explicitly states it establishes 'a state of the art on the benchmark' and provides extensive experimental comparisons across different detection and recognition approaches, demonstrating that systematic benchmark evaluation methodology for fingerspelling was already developed and published.

Evidence

Evidence 1 - **Rationale**: Both papers claim to establish benchmarks for fingerspelling recognition evaluation. The candidate explicitly proposes 'a benchmark and a suite of evaluation metrics' and establishes 'a state of the art on the benchmark', demonstrating prior work on systematic benchmark evaluation. - **Original**: we benchmark state-of-the-art models on the key tasks, including fingerspelling detection, isolated fingerspelling recognition, and fingerspelling recognition in context. experimental results show that banz-fs presents substantial challenges while offering rich opportunities for banzsl understanding... - **Candidate**: we propose a benchmark and a suite of evaluation metrics, some of which reflect the effect of detection on the downstream fingerspelling recognition task. in addition, we propose a new model that learns to detect fingerspelling via multi-task training, incorporating pose estimation and fingerspelling re...

Evidence 2 - **Rationale**: Both papers conduct benchmark experiments on fingerspelling datasets. The candidate demonstrates comprehensive benchmarking on established datasets (ChicagoFSWild), showing that systematic evaluation methodology existed prior to the original paper's claims. - **Original**: we benchmark publicly available state-of-the-art models on each task and then report the performance using corresponding evaluation metrics. experimental results demonstrate that the complexity and realism of banz-fs pose significantly challenge to existing methods, highlighting its potential to dri... - **Candidate**: w e conduct experiments on chicagofswild [46] and chicagofswild+ [45], two large-scale asl fingerspelling datasets collected in the wild. though the datasets were introduced for fingerspelling recognition (with the boundaries given), the urls of the raw asl videos and the fingerspelling start/end tim...

Evidence 3 - **Rationale**: The candidate paper establishes comprehensive evaluation metrics (AP@IOU, AP@ACC, MSA) for fingerspelling detection and recognition, demonstrating that systematic benchmark evaluation frameworks were already developed before the original paper's contribution. - **Original**: we benchmark state-of-the-art methods to highlight the unique challenges posed by banz-fs, and establish an ideal platform to evaluate fingerspelling recognition capabilities. - **Candidate**: ap@iou a metric commonly used in object detection [36] and action detection [21, 19] is ap@iou. predicted segments, sorted by score fi, are sequentially matched to the ground-truth segment x∗ j with the highest iou (intersection over union, a measure of overlap) above a threshold δiou

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7. Weakly-supervised fingerspelling recognition in british sign language videos

URL: View paper

Brief Assessment

Weakly Supervised BSL[1] focuses on British Sign Language (BSL) fingerspelling recognition using weak supervision from subtitles, while the original paper establishes benchmarks for BANZSL (British, Australian, and New Zealand Sign Language) fingerspelling with comprehensive multi-level annotations. The candidate does not challenge the novelty of establishing benchmarks for two-handed BANZSL fingerspelling systems.

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8. Asl stem wiki: Dataset and benchmark for interpreting stem articles

URL: View paper

Brief Assessment

ASL STEM Wiki[56] focuses on STEM education resources and fingerspelling detection for sign suggestion in educational contexts, not on comprehensive benchmarking of fingerspelling recognition methods across detection, isolated recognition, and contextual recognition tasks as in the original paper.

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9. A new extension of FDOSM based on Pythagorean fuzzy environment for evaluating and benchmarking sign language recognition systems

URL: View paper

Brief Assessment

Pythagorean Fuzzy Evaluation[58] focuses on a fuzzy decision-making framework for evaluating sign language recognition systems, not on establishing benchmarks for fingerspelling detection and recognition tasks as in the original paper.

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10. Investigating motion history images and convolutional neural networks for isolated Irish sign language fingerspelling recognition

URL: View paper

Brief Assessment

Irish Motion History[57] focuses on isolated Irish Sign Language fingerspelling recognition using motion history images and CNNs, not on establishing comprehensive benchmarks across multiple fingerspelling tasks (detection, isolated recognition, and recognition in context) as claimed in the original paper.

Appendix: Text Similarity Detection

Textual similarity detection checked 29 papers and found 1 similarity segment(s) across 1 paper(s).

The following **1 paper(s)** were detected to have high textual similarity with the original paper. These may represent different versions of the same work, duplicate submissions, or papers with substantial textual overlap. Readers are advised to verify these relationships independently.

1. Asl stem wiki: Dataset and benchmark for interpreting stem articles

Detected in: Contribution: contribution_3

⚠ **Note**: This paper shows substantial textual similarity with the original paper. It may be a different version, a duplicate submission, or contain significant overlapping content. Please review carefully to determine the nature of the relationship.

References

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