PlotWeaver

STORM ASR 2.0 Benchmark

Our most accurate speech recognition for Nigerian languages yet, tested against the leading Nigerian speech recognition models on the same recordings.

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Languages
Yoruba, Hausa, Igbo, Nigerian Pidgin, Nigerian English, code-mixed

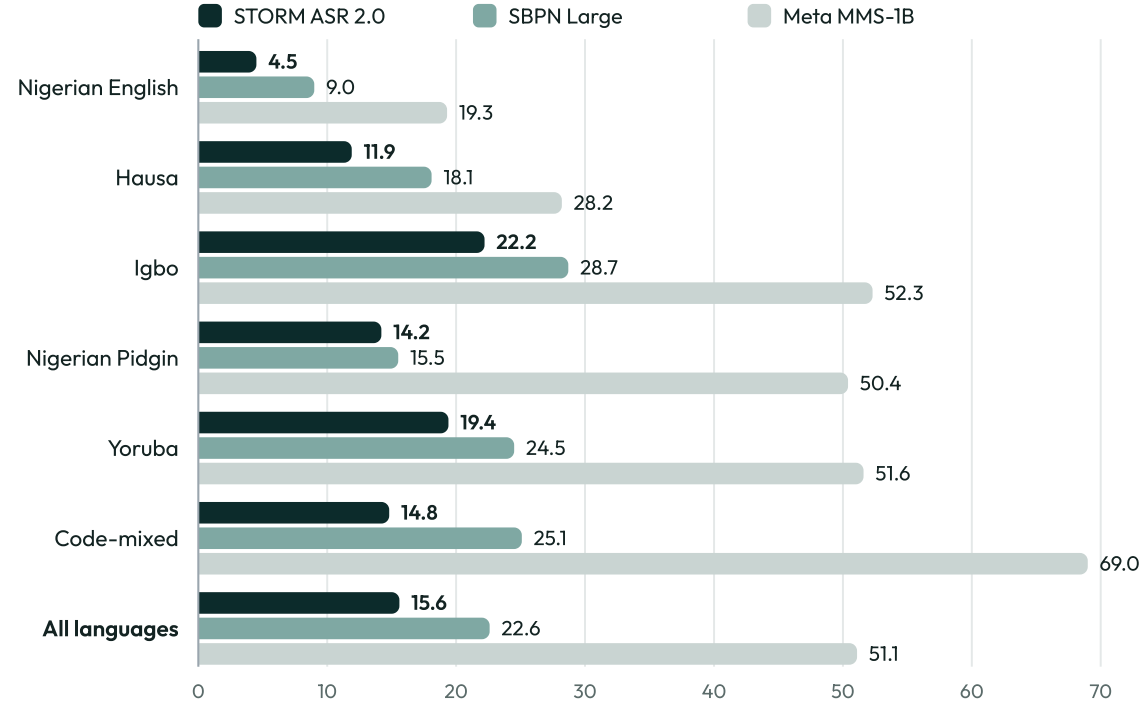
15.6
words wrong per 100 across all languages, the lowest of every model tested

31%
fewer word errors than the next best model (22.6)

6 of 6
test groups (five languages and code-mixed) where STORM ASR 2.0 has the lowest error rate

5.6
letters wrong per 100, with tone marks counted

Words wrong per 100 words spoken (lower is better)



Word error rate

Words wrong per 100 words spoken. A wrong, missing or extra word each count as one error. Best result in each row in bold.

LANGUAGE	RECORDINGS	STORM ASR 2.0	SBPN LARGE	META MMS-1B	NCAIR
Nigerian English	1,188	**4.5**	9.0	19.3	12.1
Hausa	3,615	**11.9**	18.1	28.2	n/a
Igbo	4,662	**22.2**	28.7	52.3	n/a
Nigerian Pidgin	1,369	**14.2**	15.5	50.4	n/a
Yoruba	2,499	**19.4**	24.5	51.6	44.3
Code-mixed (Yoruba + English)	9,588	**14.8**	25.1	69.0	58.0
All languages	22,921	**15.6**	22.6	51.1	n/a

Letter error rate

Letters wrong per 100 letters. A missing or wrong tone mark counts as a wrong letter, so this shows how well each model writes Yoruba, Igbo and Hausa as they are really written.

LANGUAGE	RECORDINGS	STORM ASR 2.0	SBPN LARGE	META MMS-1B	NCAIR
Nigerian English	1,188	**1.9**	3.5	6.8	6.1
Hausa	3,615	**3.2**	4.7	7.4	n/a
Igbo	4,662	**8.0**	10.1	17.6	n/a
Nigerian Pidgin	1,369	**7.4**	7.6	21.4	n/a
Yoruba	2,499	**7.7**	9.8	18.8	20.1
Code-mixed (Yoruba + English)	9,588	**5.3**	11.1	27.4	36.4
All languages	22,921	**5.6**	8.7	18.7	n/a

Examples

Recordings from the test set, as each model wrote them.

CODE-MIXED

What was said	Babangida ló hand over power fún interim government
STORM ASR 2.0	Babangida ló hand over power fún interim government
SBPN Large	babangida ló wan overpower fún interim government

YORUBA

What was said	Àlùfáà ìjọ aṣọ ara kan ṣe ìṣirò ìgbà tí Jésù yóò dé.
STORM ASR 2.0	**Àlùfáà ìjọ aṣọ ara kan ṣe ìṣirò ìgbà tí Jésù yóò dé.**
SBPN Large	àlùfáà ìjọ aṣọ ara kan ṣe ìṣe èrò tí jésù yóò dé

IGBO

What was said	a naghị ekwe ka nwaanyị di ya nwụrụ rie nri e siiri ndị ezinụlọ ya
STORM ASR 2.0	**A naghị ekwe ka nwaanyị di ya nwụrụ rie nri e siiri ndị ezinụlọ ya**
SBPN Large	anaghị ekwe ka nwaanyị di ya nwụrụ rie nri e siri ndị ezinụlọ ya

NIGERIAN PIDGIN

What was said	Chicken wey run way from Borno go Ibadan go still end up inside pot of soup
STORM ASR 2.0	**Chicken wey run way from Borno go Ibadan go still end up inside pot of soup**
SBPN Large	chicken wey run away from borno go ibadan go still end up inside port of soup

NIGERIAN ENGLISH

What was said	First, Hurricane Rosa's path leads to landfall across the Baja California peninsula of Mexico.
STORM ASR 2.0	**First, Hurricane Rosa's path leads to landfall across the Baja California peninsula of Mexico.**
SBPN Large	first hurricane rose's path leads to landfall across the baha california peninsula of mexico

How we tested

- **Test set:** 22,921 recordings, about 34 hours, in Nigerian English, Hausa, Igbo, Nigerian Pidgin, Yoruba and Yoruba mixed with English. Every model transcribed exactly the same recordings.
- **STORM ASR 2.0** was measured through the live production service, exactly as customers receive it, with no language given: it recognises the language on its own. Meta MMS-1B and the NCAIR models were given the correct language for every recording.
- **Scoring:** capitals and punctuation are ignored; tone marks count, so a missing or wrong tone mark makes a word wrong. Recordings whose reference text contains digits were left out, because models write numbers differently (for example "2018" or "two thousand and eighteen"). All counts were made by our own scoring code from each model's raw transcripts.
- **Models compared:** SBPN Large (ogunlao/SBPN_multilingual_large), a multilingual model for Nigerian languages, licensed for research use only; Meta MMS-1B (facebook/mms-1b-all) with its Yoruba, Hausa, Igbo, Pidgin and English adapters; NCAIR Yoruba-ASR and NCAIR NigerianAccentedEnglish, which cover Yoruba and Nigerian English only. Each was run from its published weights with its default settings.

STORM ASR 2.0 is available now on the PlotWeaver developer platform, developer.plotweaver.app. · PlotWeaver Limited, Company No. 16189457, London, UK. www.plotweaver.app