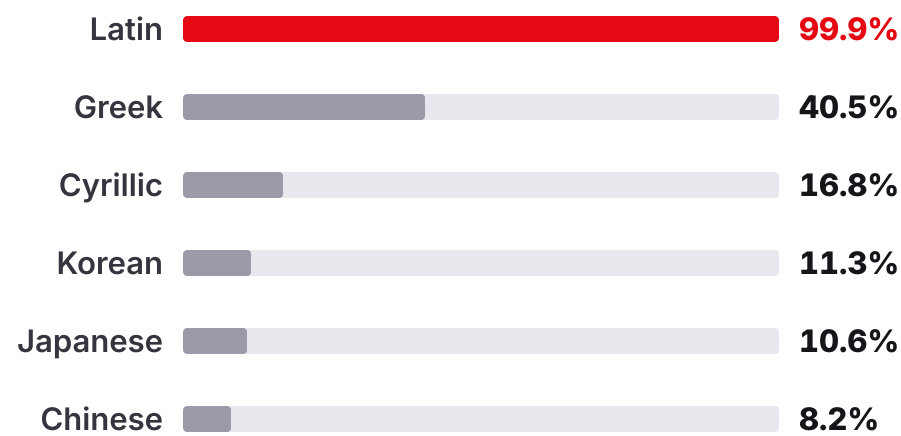




1 Challenge of Font Localization

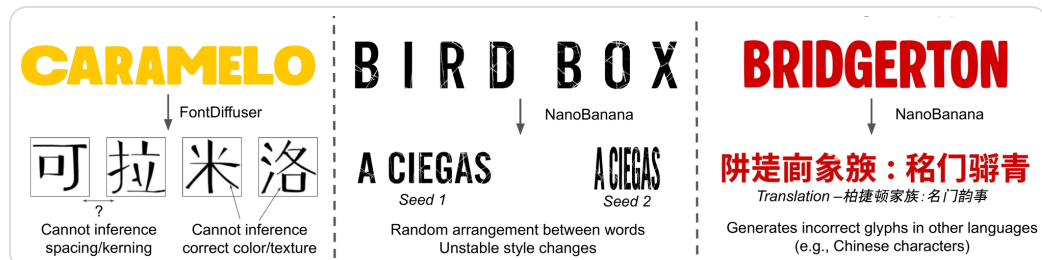
- Many logos are built directly from fonts, but most popular fonts support **Latin scripts** mainly.
- Current fix: **substitute a close font** (losing design consistency), or **draw missing glyphs** by hand.
- Manual re-creation** takes significant effort to match style and re-space, re-color, and re-texture.

Most fonts support mainly **Latin scripts** and lack full support for CJK and other minority languages (long-tailed)



Thai 3.9% · Hindi 1.7% · Hebrew 1.5% · Arabic 1.1% — across a sample of 15,000 popular fonts

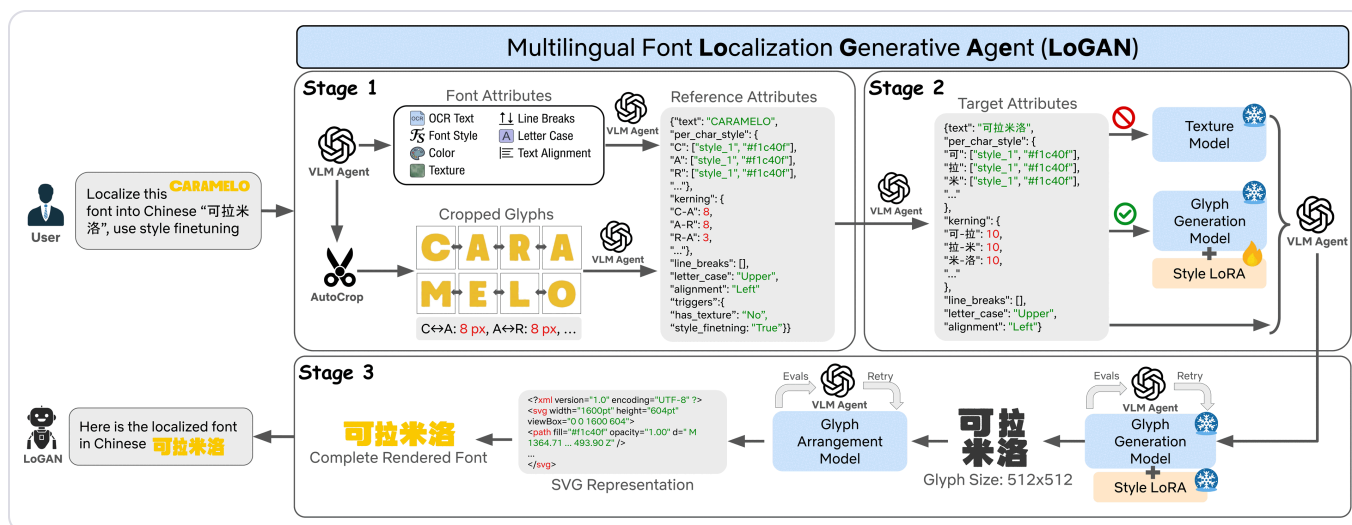
Many existing approaches **fail to meet** production-level requirements



- Font-based diffusion models** can handle single glyph generation only, not spacing, kerning or texture.
- End-to-end editing** is unstable in style and character arrangement, and differs across multiple runs.
- Most generative models** degrade sharply outside Latin scripts, e.g., CJK and other minority languages.

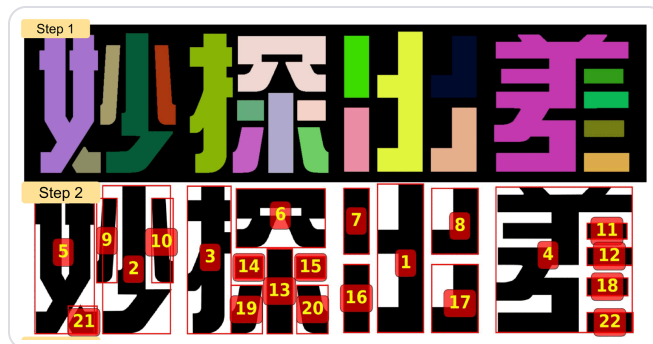
2 LoGAN

1 Design Extraction → 2 Design Transfer → 3 Design Generation



3 Key Components of LoGAN

A AutoCrop — **training-free** character cropping



G Glyph Generation. A 2B diffusion transformer trained from scratch on 27 languages, conditioned on reference glyphs and translations.

e.g., CAMELO [EN] → [ZH]

K Spacing & Kerning Transfer. Each letter falls into four shape classes; gaps on reference pairs infer target spacing by font designer-curated ordering.

SHAPES | straight (H) · circular (O) · / ascend (A) · \ descend (V)

S Cross-Lingual Sampling. Balances same- and cross-language pairs sampling during training, with additional sampling rules for Latin scripts.

e.g., hELIO → A · AAAAAA → A · úúúúúú → u

T Texture Expansion. A LoRA fine-tuned on FLUX.1-Fill-dev that recovers the full texture map from a burnt-in reference.

You People →

4 Quantitative Results

Model	CJK					NON - CJK				
	PSNR↑	SSIM↑	LPIPS↓	DSim↓	CLIP↑	PSNR↑	SSIM↑	LPIPS↓	DSim↓	CLIP↑
AnyText2	6.89	0.329	0.825	0.510	0.811	7.12	0.458	0.806	0.524	0.812
Flux - Text	6.90	0.580	0.706	0.374	0.858	6.97	0.560	0.706	0.444	0.838
Flux - Kontext Pro	7.05	0.635	0.667	0.162	0.801	7.78	0.596	0.607	0.158	0.876
Nano - Banana	7.66	0.622	0.588	0.101	0.920	8.99	0.638	0.481	0.084	0.922
LoGAN (ours)	9.49	0.692	0.446	0.076	0.948	10.08	0.684	0.373	0.072	0.944

Component level	GLYPH - LEVEL QUALITY					TEST SET WITH TEXTURE				
	PSNR↑	SSIM↑	LPIPS↓	DSim↓	CLIP↑	PSNR↑	SSIM↑	LPIPS↓	DSim↓	CLIP↑
Nano - Banana	15.75	0.726	0.179	0.122	0.958	10.65	0.606	0.483	0.100	0.916
LoGAN (ours)	18.67	0.802	0.121	0.094	0.968	11.88	0.659	0.378	0.118	0.934

HUMAN EVALUATION

52.9% production-ready
pass rate over 700 generated logos

PIPELINE ROBUSTNESS

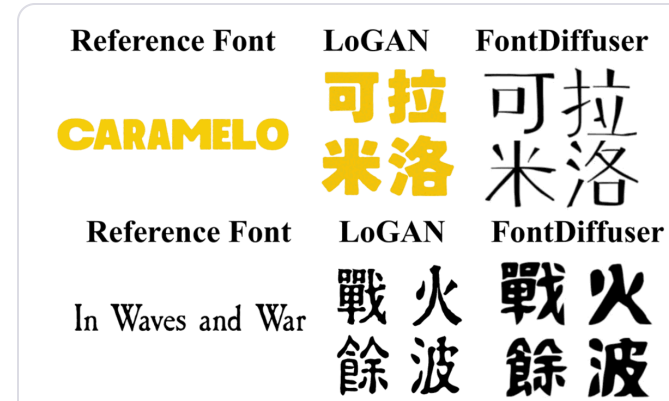
3% pipeline failure rate
1,800-logo generation pressure test

5 Qualitative Comparison

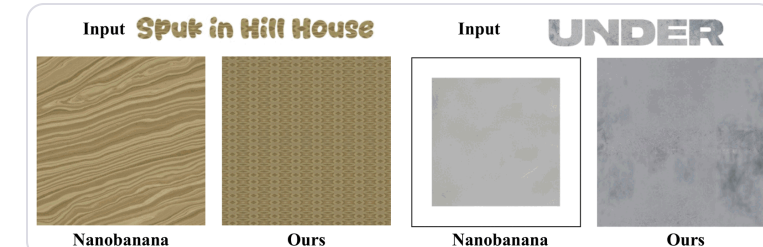
Reference	CAMELO			THINGS HEARD & SEEN		
Translation	KAPAMEAO	カラムロ	可拉米洛	허드 앤 씬	ΘΣΑ ΨΙΘΥΡΙΖΕΙ ΤΟ ΣΚΟΤΑΔΙ	闇はささやく
Flux-Kontext	RAM	KTEAZIP	凌M	THINGS HEARD & SEEN	MNNCSHEAIPZ A SEEN	THINGS HEARD & SEEN
Nano Banana	KAPAMÉAO	カラメロ	可拉米洛	THINGS HEARD & SEEN	ΘΣΑ ΨΙΘΥΡΙΖΕΙ ΤΟ ΣΚΟΤΑΔΙ	闇はささやく & SEEN
Ours	KAPAM'ÉAO	カラメロ	可拉米洛	허드 앤 씬	ΘΣΑ ΨΙΘΥΡΙΖΕΙ ΤΟ ΣΚΟΤΑΔΙ	闇はささやく

Reference	In Waves and War			REBECCA		
Translation	I bølger og krig	戰火餘波	海豹部隊的退役長歌	REBECCA	レベッカ	РЕБЕККА
Flux-Kontext	I bølger og krig	In Waves and War	In Waves and War	REBECCA	REBECCA	REBECCA
Nano Banana	I bølger og krig	In Waves and War	戰火餘波 海豹部隊的退役長歌	REBECCA	レベック	РЕБЕККА
Ours	I bølger og krig	戰火餘波	海豹部隊的退役長歌	REBECCA	レベッカ	РЕБЕККА

Glyph quality vs. FontDiffuser



Texture expansion vs. Nano-Banana



Left FontDiffuser fails to match the reference font's original style and color. **Right** LoGAN better preserves fine detail and more closely matches the reference texture than Nano-Banana.