## Artistic Glyph Image Synthesis via One-Stage Few-Shot Learning

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#### 1 Introduction

In this supplementary material, we provide some additional results to support our paper.



### 2 Parameter Studies

Fig. 1. Visual comparison of our models with different few-shot size n and style input size m on the English glyph dataset. Characters in the few-shot reference set are marked in red boxes.

某炼刊臼棘銜乖革 延汛钱. Ground truth 拜 坐 粤 鼎垂秉貧 某炼刊日棘衡乖革鼎垂秉瓮 拜坐粵 弡 汛發曲悄 兢 n=10, m=4衡乖革鼎垂秉瓮 拜坐粤延汛 某炼刊日棘 毯曲 n=10, m=8 悄耐那 रेरे 某炼刊日棘衡乖革鼎垂秉瓮 拜坐粤延汛 **發曲悄耐那** n=30, m=4坐粤延汛 衡乖革鼎 秉 瓮 拜 n=30, m=8 某炼刊臼棘 垂 **發曲悄耐那** 兢 革 鼎 秉 瓮 拜 坐 粵 某炼刊日棘 衡乖 垂 延汛 **毯曲悄耐那** *n*=60, *m*=4 革 秉 4 몔 某炼刊臼棘衡乖 鼎 垂 瓮 拜 延汛談曲悄耐那 ዥ n=60, m=8 **RT** n=100, m=4 某炼刊日棘 坐 粵 垦 ₹ 瓮 拜 延汛發曲省 乖 革 衝 毌 殑 n=100. m=8 某炼刊 [] 棘衡乖革鼎垂秉瓮 拜坐 粤延汛毯曲悄耐那 る兢

Fig. 2. Visual comparison of our models with different few-shot size n and style input size m on the Chinese glyph dataset.

Ground truth 彻 勿 も 戎 颅 览 兼 伙 禎 弟 图 斥 甭 墨余寅 勿甚 丘逆卖立垢耽 富余 n=10, m=4 彻 勿 屯 戎 预 览 兼 伙 顿 弟 百 斤貨 T. 近谭委 亏 垢 耽 G 2 览兼伙 SP n=30, m=4 彻 勿 屯 戎 颅 顿 弟 囱 斥 衝 甚 5 7 实 立垢耽 \$ 5 2 n=60, m=4 彻 勿 屯 戎 颅 览 兼 伙 顿 弟 囱 斥 甭 2 甚 臣祥 实 立垢耽 1 1 n=100. m=4 彻勿屯戎颅览兼伙顿弟囱斥雷盅余寅勿甚丘逆卖立垢耽

Fig. 3. Visual comparison of our models with different few-shot size *n* on the Chinese glyph dataset, the style input size is fixed to 4.

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#### 3 Ablation Studies



Fig. 5. Ablation studies for the proposed AGIS-Net, w/o denotes without.

#### 4 Comparison with the State of the Art



Fig. 6. Visual comparison of synthesized glyph images for some English artist-designed fonts, obtained by our AGIS-Net, MC-GAN [Azadi et al. 2018], TET-GAN [Yang et al. 2019], MS-Pix2Pix [Mao et al. 2019] and BicycleGAN [Zhu et al. 2017b], respectively.

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TET-GAN	AB	C	DE	F	G	H		J	K	L	M	N	0	P	Q	R	S	T	U	V	W	X	Y	Ζ
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Fig. 7. Visual comparison of synthesized glyph images for some English artist-designed fonts, obtained by our AGIS-Net, MC-GAN [Azadi et al. 2018], TET-GAN [Yang et al. 2019], MS-Pix2Pix [Mao et al. 2019] and BicycleGAN [Zhu et al. 2017b], respectively.

# 5 Application on Chinese glyphs

Ground truth AGIS-Net TET-GAN	逮逮逮	存存存	部部	/   /   21]	匙匙匙	米水 苯	产产产	フ オ オ	衡衡衡	<b>卞卞</b>	<b>变变</b>	辟辟	比比	本本 容	卑卑卑	贸贸贸	爸爸爸	ハ ハ <u>ネ</u>	奥奥奥	鄭朝
Ground truth AGIS-Net TET-GAN	<b>脊脊脊</b>	襋 棘 棘	公公公	惡惡惡	辉 辉 辉	<u>5</u> 5 9	<b>好</b> 好 好	候候候	石石石	泉泉泉	<b>H</b> <b>H</b> <b>H</b> <b>H</b> <b>H</b>	<b>祭 癸</b> 癸 癸	光光光	<b>慶</b> 康 康		<b>敢</b> 敢 敵	商崩崩	而 而 行	顿顿顿	222
Ground truth AGIS-Net TET-GAN Ground truth AGIS-Net TET-GAN	凹凹門 颅颅隙	辟辟醉 某某某	東東東 水木木	曹曹曹 年年年	多产产 芜芜芜	<b>矗矗桑</b> 悄悄	匆匆匆 青青山	存存存 曲曲號	单单单 入入入	儿儿儿 森森森	敢敢敢 上上上	古古古 シンシ	光光光 省省诸	以火火 丝丝丝	ZZZ ZEL	<b>站谷坐</b> 顽顽酸	DEF PPF	黎黎黎 匀勿为	临临端 乡乡乡	邻邻部 小小牛
Ground truth <b>AGIS-Net</b> TET-GAN	爱爱爱	敖敖赦	爸爸爸	時日時日時間	秉秉秉	不不不	裁裁裁	***	E E Z	。 川 川 <u></u>	。 寸 寸	丹丹升		断断断	ええて	方方方	龙兵 龚 龚	垢垢垢	骸骸骸	话 话 话
Ground truth <b>AGIS-Net</b> TET-GAN	火火火		寇寇寇	良良良	逆逆逆	111日第	少少少	虱虱	<u>44</u> 44 44	<b>肃</b> 肃	唐 唐 唐	桃桃舞	套套套	腗 腆 鵩	伪伪	毋 毋 毋	悉悉悉	向向面	<b>衅</b> 鮮	熏熏熏

Fig.8. Visual comparison of synthesized glyph images for some Chinese artist-designed fonts, generated by our AGIS-Net and TET-GAN [Yang et al. 2019], respectively.

6 Generalization Ability

abcdefghijklmnopqrstuvwxyz  $0 \circ C \circ$ ObCARf npon  $( \circ )$ 21 110 **bCd** 0 H V npq 8 T ObCde F.1 7 I 667 -Obcdefoh A K STUVWXYZ 104Q(

Fig. 9. Glyph images of English lowercase characters synthesized by AGIS-Net. The first row shows the content input for lowercase characters.

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Fig. 10. Glyph image synthesis for Japanese and Korean characters. The first row shows the content input images, and the leftmost two columns give an overview of the styles.