SVGBuilder: Component-Based Colored SVG Generation with Text-Guided Autoregressive Transformers

Zehao Chen, Rong Pan*

School of Computer Science and Engineering, Sun Yat-sen University, Guangzhou, Guangdong, China

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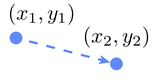
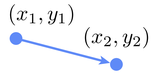
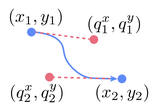
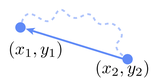
Introduction

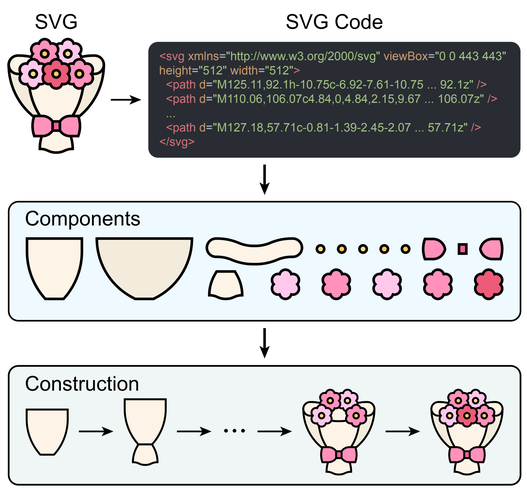
Scalable Vector Graphic (SVG)

Scalable Vector Graphics (SVG) is an XML-based markup language for describing two-dimensional vector graphics. Unlike raster images, SVGs are mathematically defined, allowing them to be scaled to any size without loss of quality, ensuring sharp images on all devices.

SVG Representation

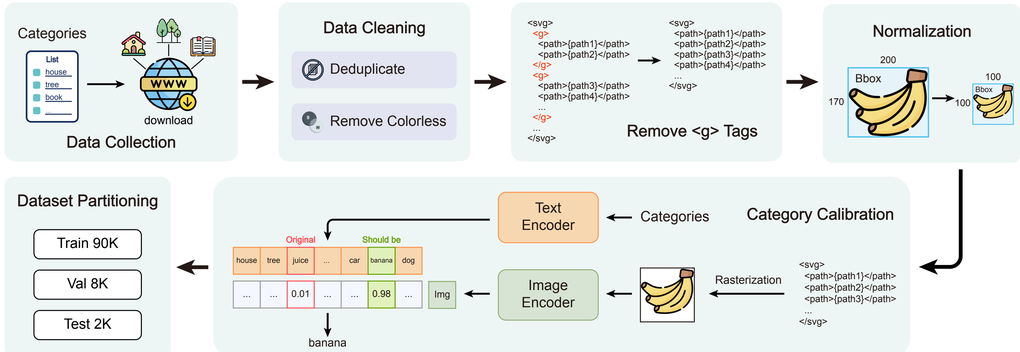
Name	Symbol	Arguments	Visualization
Move To	M	$(x_1, y_1), (x_2, y_2)$	
Line To	L	$(x_1, y_1), (x_2, y_2)$	
Cubic Bézier	C	$(x_1, y_1), (x_2, y_2)$ $(q_1^x, q_1^y), (q_2^x, q_2^y)$	
Close Path	Z	$\varnothing$	

Component-Based Generation

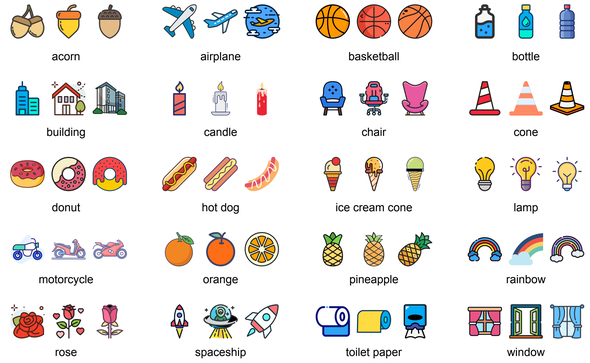


ColorSVG-100K Dataset

The Construction Process



Examples



System Framework Overview