

AN INTERACTIVE SYSTEM FOR CHINESE TRADITIONAL CALLIGRAPHY AND PAINTING

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ABSTRACT. *This paper presents a novel Chinese calligraphy and painting system, which serves as an expressive vehicle for interactively creating Chinese traditional calligraphy and ink-wash painting works. We developed a brush model which gives the user natural control of complex brush strokes. This model enhances the realistic sense of the user's manipulating the pen with the pressure sense. We also develop an ink-wash painting model which simulates Tuiyun - a unique Chinese ink-wash painting technique. User feedback has shown that the system is able to create vivid art works easily and smoothly.*

Keywords: Painting system, Brush model, In-wash model

1. **Introduction.** Calligraphy, the ancient Chinese art of writing, plays a significant role in the field of graphic design and is the art form that connects the art to the writing characters. Ink-wash painting is also a Chinese traditional art form of painting that is drawn in the *rice paper*¹ by brush. The brush, which serves as the tool of calligraphy and traditional Chinese ink-wash painting, is convenient to use and has its special expressive force. However, this characteristic of brush has also imposed difficulties on its computer simulation. Therefore, the computer simulation of the traditional Chinese calligraphy and ink-wash painting becomes one of the most challenge issues in computer graphic field. The calligraphy is emphasized more on the skills of *bifeng*², strength and *pen-holding style*. To simulate the art form well we should give full consideration to the writing skills excessively.

Since the computer simulation for them is a hard task, many researchers who address this issue have tried to provide the techniques to simulate them approximately and realistically. They have mainly emphasized the appearance of the product. However, the painting system combined with our developed models stresses a fusion of feeling and action, sight and touch, purpose and paint, beyond merely producing an image that gives an artistic impression.

1.1. **Main contribution.** The main goal of our study is to offer an interactive method to generate vivid calligraphy and painting works by computer. One of the most crucial and difficult tasks in simulating calligraphy is the *bifeng* effect. Therefore, we first present a *bifeng*-based contact model, which is an irregular solid graphic and abstracted shape from a standard point written by brush. Because the characteristic of *bifeng* is mainly

¹a special paper used in creating calligraphy and ink-wash painting works

²vigor of style in writing