



Give Life Back to Alternative Process: Exploring Handmade Photographic Printing Experiments towards Digital Nature Ecosystem

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Figure 1: (a) Results with our method. (b) Our proposed UI for editing, simulation, and optimization. (c)-(i) Our proposal computational alternative photographic process.

ABSTRACT

The proliferation of smartphones has made it easy for anyone to take digital photographs, and the recent popularization of text-to-image models has made it easy for anyone to create images. In this age, by combining digital technology with the tactile experience of handmade processes, we can rediscover the joy of creating with

our own hands and the emotional connection that comes from physically interacting with our work. Previously, we proposed a new printing framework that integrated computer processing with full-color cyanotype printing. In this work, we demonstrate expanding the range of aesthetic expressions with computer processing for tone adjustment with several alternative processes such as salt print, platinum print, and cyanotype. In the installation, we present our printing framework with the user interface and exhibit works utilizing our proposed method. The use of new media developed after the digital age and the integration of computer processing in photo printing may be a way to create a new photographic life with the joy of materialising scenery.

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CCS CONCEPTS

• **Applied computing** → **Media arts**; • **Human-centered computing** → **Visualization toolkits**.

KEYWORDS

Alternative Photographic Process, Handmade Photography, Simulation, Optimization

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1 INTRODUCTION

The computer graphics community has driven this digital world as the driving force of current photo editing and visual communication. Now that photographic images can be obtained without a camera through generative AI prompts [Oppenlaender 2022], and stock photos are being proposed¹, communication through photographs is changing radically. When considering the continuation and development of the tradition of the viewing space of classical photographs and the preservation of exhibition spaces, one of the things that the media art and graphics community should address is the exploration of materialised photographic alternatives [Kelsey 2015]. We believe that the experience of our developed printing technique can bring out people's creativity and revive analog photography culture.

2 ALTERNATIVE PHOTOGRAPHIC PROCESS

Alternative processes are also known as classical printmaking methods, and they are ways of creating handmade photographs [James 2016]. The negative or direct positive can be produced using a lensed camera, scanner, or primarily through computer-generated means. The final print can be produced on various commercially available photographic media such as paper, canvas, metal, or fabric and can exist in both analog and digital forms or be strictly digital. Alternative processes consist of four main steps: mixing of chemicals, creation of light-sensitive papers, exposure, and developing.

3 COMPUTATIONAL ALTERNATIVE PHOTOGRAPHIC PROCESS

Our work presents a valuable contribution to the field of alternative photographic processes by providing a new approach to tone adjustment that preserves the unique aesthetic qualities of these processes. Previously, we proposed a new printing framework that integrated computer processing with full-color cyanotype printing [Ozawa et al. 2022]. In this work, we present a novel approach to tone adjustment in alternative photographic processes using user interface and optimization. The technical contribution of this paper is the examination and integration of computer technology within the traditional process of handmade photographic printing (Fig. 2). Specifically, the authors have focused on tonal adjustments through

¹<https://stockphoto.com/>

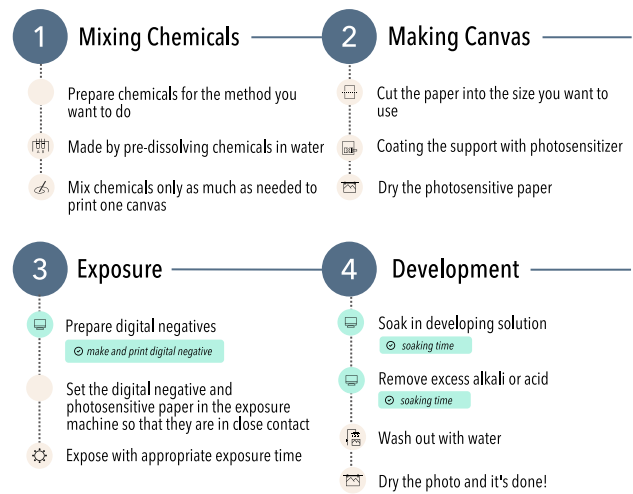


Figure 2: The diagram illustrates a four-step systematic approach for alternative photographic processes.

the use of computer technology, demonstrating the potential for a harmonious blend of digital and analog techniques to enhance the final print results.

4 THE SIGGRAPH ATTENDEE EXPERIENCE

4.1 Installations

In the “installations”, we visualize research content, exhibit works using research results, and demonstrate the software we developed. Participants can view actual prints using our research results at our exhibition booth and experience the software we developed.

4.2 Explore New Expressions and Your Artistic

The integration of traditional photography with digital technology enables new artistic expressions. With a user-friendly interface, one can manipulate image parameters to create unique effects using environmentally friendly materials. Allowing hands-on work, users can produce one-of-a-kind photos, with the use of colored pencils or paints adding to the uniqueness. This approach facilitates creativity for photographers and artists by combining traditional methods with digital processes, thus offering a new realm of creative freedom in photography.

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