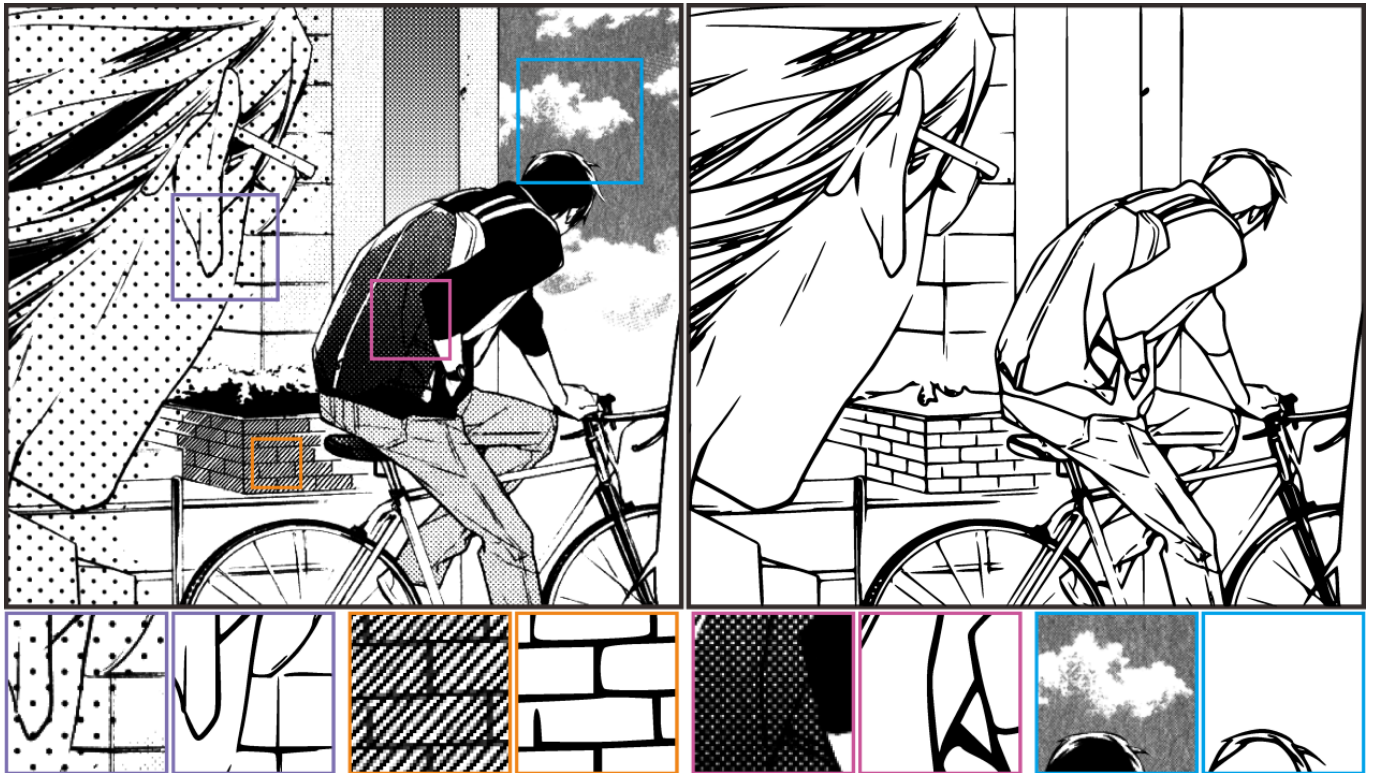


Deep Extraction of Manga Structural Lines

<http://exhibition.cintec.cuhk.edu.hk/exhibition/project-item/manga-line-extraction/>



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Project Category: Information & Communication Technologies

Project Description

Facilitate manga digital migration by automatically extracting structural lines from patterns.

With the wide popularity of portable devices and the low-cost distribution over the internet, there has been an increasing trend to convert legacy manga to digital form. Comparing to traditional paper-based manga, electronic manga or e-manga is more visually appealing as more visual elements, such as color presentation and powerpoint-like animation, can be easily introduced. During digital migration, extraction of structural lines from pattern-rich manga is a crucial step. Unfortunately, it is very challenging to distinguish structural lines from arbitrary, highly-structured, and black-and-white screen patterns. In this project, we present a novel data-driven approach to identify structural lines out of pattern-rich manga based on convolutional neural networks. Our method can benefit the manga industry in migrating legacy manga to digital manga, which includes a large set of manga-related applications, e.g. manga colorization, manga vectorization, manga retargeting, stereoscopic manga conversion, etc.

- Our method outputs clear and smooth structural lines regardless of their scales or their positions relevant to the patterns, or even if these lines are contaminated by and immersed in complex patterns, such as irregular, tone-varying, or even pictorial patterns
- By learning high-level semantics of manga images with the help of convolutional neural networks, our method can extract clear and smooth structural lines from manga images with arbitrary screen patterns
- Our method substantially outperforms other state-of-the-art methods in terms of visual quality extraction

efficiency

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