Deep Multi-Modal Unsupervised Line Art Pen Pressure Stylization

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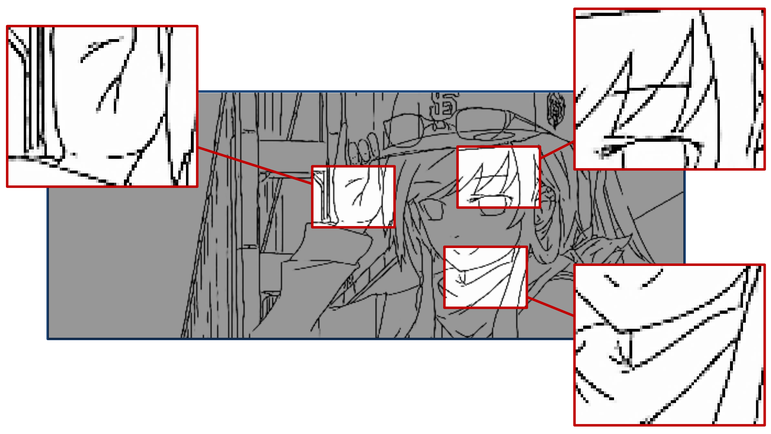
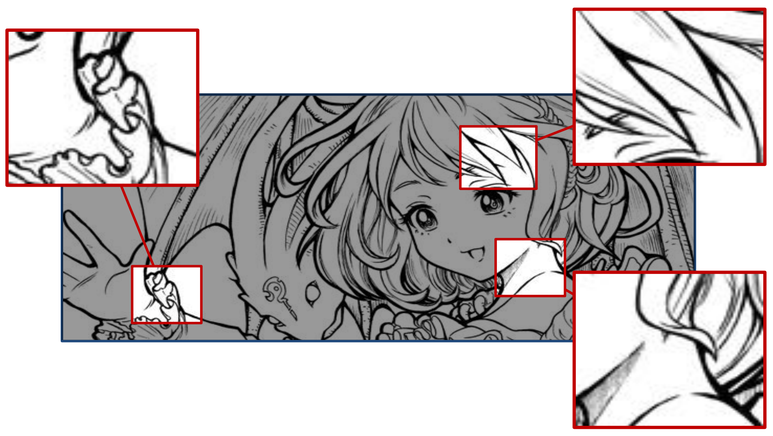
Introduction and Backgrounds

Importance of Pen Pressure Stylization*

Without Pen Pressure



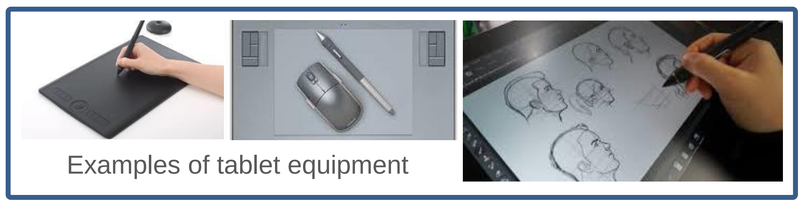
With Pen Pressure



- **Pen pressure stylization** is *de-facto* essential processing affecting **the aesthetic of line art**.
- We propose an automatic **pen pressure stylization** method for **raster images** with **unsupervised learning-based approach**.

Difficulties in Handling Pen Pressure

- **Pen pressure stylization**
  - is a **time-consuming task**
  - requires a high level of **expertise**
  - requires tablet **equipment**



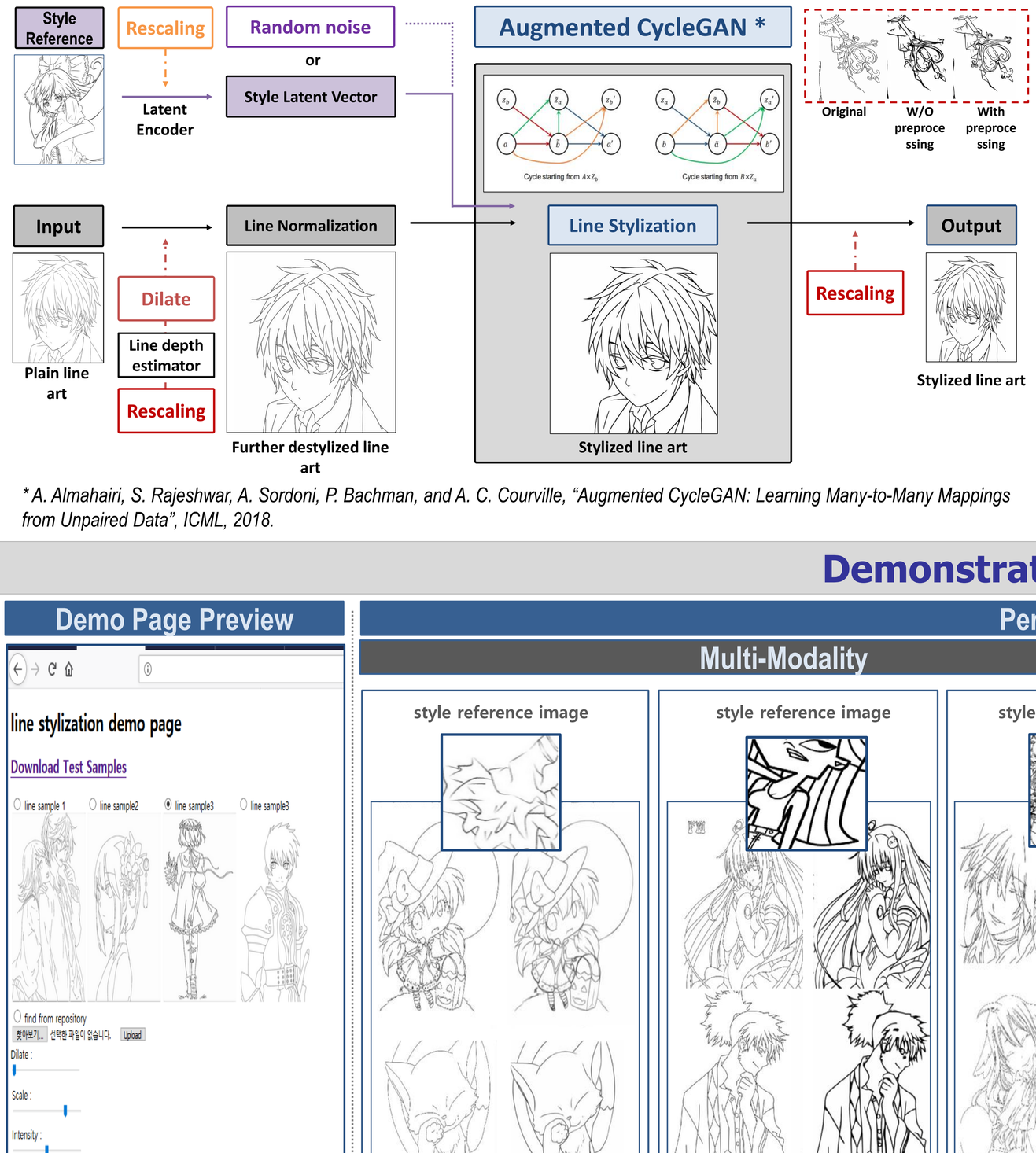
Examples of tablet equipment

Limitations of Existing Approaches

- Rule-based approaches require **vectorization** or **vectorized line art**
- Learning-based methods require **scarce paired dataset**.

Multi-Modal Unsupervised Pen Pressure Stylization

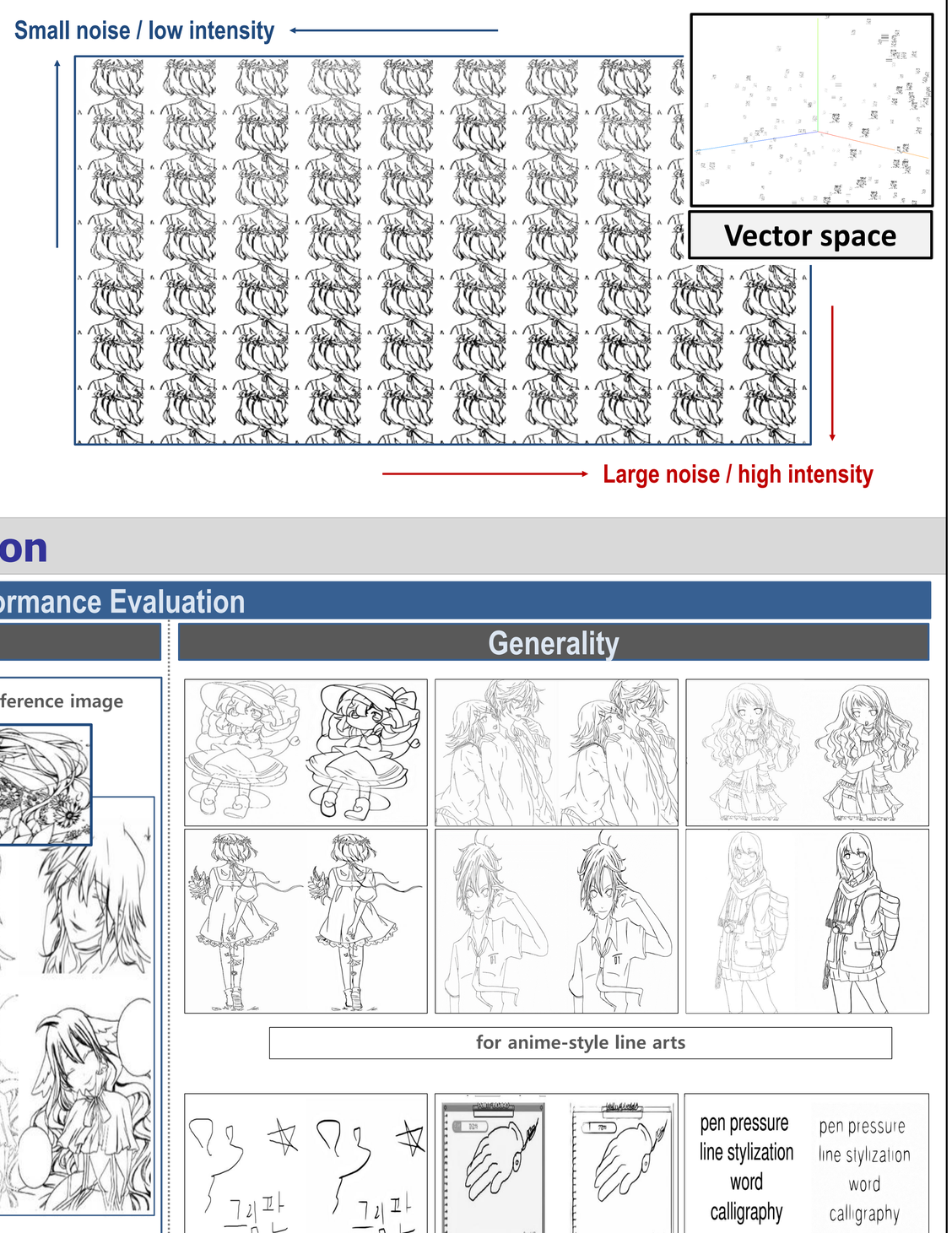
Pipeline of Proposed Stylization Method (inference procedure)



*A. Almahairi, S. Rajeshwar, A. Sordoni, P. Bachman, and A. C. Courville, "Augmented CycleGAN: Learning Many-to-Many Mappings from Unpaired Data", ICML, 2018.

Intensity Adjustment

- The **intensity** of stylization can be adjusted by **manipulating style latent vector** (adding noise to known style latent vector).



Demonstration

Demo Page Preview

Performance Evaluation

Multi-Modality

Generality

IEEE International Conference on Computer Vision, Demo (ICCV2019 Demo)
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