Man Minh Ho

Ph.D. Candidate at Hosei University
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Page: https://minhmanho.github.io/

Education

Ph.D. in Computer Science and Engineering — Sept. 2020 — Mar. 2022 (planned, under review)
Hosei University, Tokyo, Japan

Master of Engineering in Computer Science and Engineering — Sept. 2018 — Sept. 2020
Hosei University, Tokyo, Japan

Bachelor of Science (Honors) in Computer Science — Sept. 2013 — Sept. 2017
University of Information Technology, Ho Chi Minh city, Vietnam

Projects

- **Smartphone Photo Scanning:** Presented a new dataset DIV2K-SCAN for smartphone-scanned photo restoration, simulated many different domains to gain generalization in smartphone-scanned image properties, proposed a semi-supervised learning approach to diversify training image content.
- **Color Style Transfer**: As an independent project. Defined a new color style based on low-level transformation. Proposed a supervised method to transfer color style from a well-retouched photo to a photo with natural colors and different content. Lightroom Preset now can be a well-retouched photo.
- **Colorization:** Simulated human behavior in coloring a black-and-white image and proposed a semantic-driven colorization with an interactive application.
- **Video Compression:** Worked on improving compression ratio without losing video quality using applying advanced techniques in the fields of Super-Resolution, Colorization, and Frame Interpolation.
- **Applications for Visually Impaired People:** As a side-project in coins/banknotes detection. Proposed a way of leveraging depth estimation to avoid noise in the background and narrow the depth of interest in such case that the person desires to detect coins/banknotes only on a certain surface (e.g., their hands).

Experience

Research Assistant and JST Engineer — 2018 — now
Intelligent Media Processing Lab (IMPLab), Hosei University

- Research on Deep Learning techniques for Video Compression. Besides, I take responsibility for managing GPU servers and assisting other students in their projects.

Amateur Photographer 2015 — now

Sarugraphy

- I have been learning how to take good photos using my Canon 40D for years. I also obtained retouching/editing photo skills to enhance photo color style and quality.

Machine Learning Engineer 2017 — 2018

EyeQ Tech, Vietnam

- Deal with real-world problems related to face recognition, multi-face tracking, and object detection using deep learning techniques. Get used to Nginx, RabbitMQ, MongoDB, etc. Besides, I also participated in interviewing candidates. I was recognized as a "Key Contributor" and promoted/trained to be a team lead.

Working as a part of Human Management (Part-time) 2014 — 2016

SouL Magazine, Vietnam

- Manage others to meet monthly deadlines, communicate between departments to solve problems. I also participated in recruiting and evaluating good writers.

Awards and Honors

- 2020/07 – (Top-1 Research Performance) Hosei University Science and Engineering Departments Education/Research Promotion Fund Academic Achievement Award 2020.
- 2020/01 - Best Paper Runner-up Award at the 26th International Conference on Multimedia Modeling (MMM 2020), Daejeon, Korea.
- 2018/08 – "Key Contributor" by EyeQ Tech, Vietnam.
- 2018/08 – "Squad of the month" by EyeQ Tech, Vietnam.
- 2016/12 - "The Five-Virtue Student" by Vietnam National University, University of Information Technology.

Grants and Scholarships

- 2020/12 – Hosei Research Grant for Doctoral Courses.
- 2020/07 – Hosei University 100th Year Anniversary Scholarship.
- 2019/10 - Japan Student Services Organization (JASSO) Scholarship.
- 2019/09 - Daddy Longlegs Scholarship.
- 2013 ~ 2017 – Monthly Scholarship for Students in Honors Programs.

Professional Experience

- I have served as a reviewer for CVPRW 2020, BMVC 2020, WACV 2021, BMVC 2021, ICCV 2021 (assistant), and WACV 2022.

Teaching Assistant

- Spring Semester 2020: Graduation Research (卒業研究) – Prof. Makoto Hirahara
- Fall Semester 2020: Experiments in Information Engineering (情報工学実験) – Prof. Mitsuru Shinagawa
- Spring Semester 2021:
  + Graduation Research (卒業研究) and Project-Based Learning – Prof. Akihiro Fujii
  + Graduation Research (卒業研究) and Project-Based Learning – Prof. Atsushi Kanai
  + Project-Based Learning – Prof. Jinja Zhou

Papers

[1] **Man M. Ho**, Lu Zhang, Alexander Raake, Jinjia Zhou, "Semantic-driven Colorization", *To appear in ACM SIGGRAPH European Conference on Visual Media Production (CVMP), 2021.*
Code: https://github.com/minhmanho/semantic-driven_colorization
"I proposed a way to apply human-like action for machines to colorize a black-and-white image, proved that Instance Normalization (IN) is also a missing ingredient for Image Colorization, and designed a suitable inference flow. This work was completed in early 2019 when I started diving into deep learning. I was intrigued by the correlation between human behaviors and how a deep neural network learns to color images.".

[2] **Man M. Ho**, and Jinjia Zhou. "Deep Photo Scan: Semi-Supervised Learning for dealing with the real-world degradation in Smartphone Photo Scanning." *arXiv preprint arXiv:2102.06120* (2021).
Page: https://minhmanho.github.io/dpscan/
"I proposed a novel dataset DIV2K-SCAN for smartphone-scanned photo restoration, Local Alignment to properly reduce the misalignment in data, a way of simulating many different domains to gain generalization in smartphone-scanned image properties, Semi-supervised Learning allowing our network to be trained on scanned and unscanned photos, and Residual Efficient Channel Attention (RECA)-customized Network.”.

[3] **Man M. Ho**, Jinjia Zhou, and Gang He. "RR-DnCNN v2. 0: Enhanced Restoration-Reconstruction Deep Neural Network for Down-Sampling-Based Video Coding." IEEE Transactions on Image Processing (TIP) 30 (2021): 1702-1715.
Code: https://github.com/minhmanho/rrdncnn
"This is an extended version of the RR-DnCNN [7]. I proposed a novel way to use the up-sampling skip connections between restoration and reconstruction".

[4] **Man M. Ho**, Jinjia Zhou, "Deep Preset: Blending and Retouching Photos with Color Style Transfer", In *Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV)*, pp. 2113-2121. 2021.
Page: https://minhmanho.github.io/deep_preset/
"I proposed a novel color style based on low-level image transformation providing a supervised approach for color style transfer. End-users now can retouch their photos using any well-retouched photo they prefer".

[5] Huyen T. T. Bui, **Man M. Ho**, Xiao Peng, Jinjia Zhou, "Japanese Coins and Banknotes Recognition for Visually Impaired People", VizWiz Workshop, 2020.
"I proposed a way of using depth estimation in coins/banknotes detection to avoid noise in the background and narrow the depth of interests in case the user desires to detect coins/banknotes on a certain surface (e.g, their hand)".

[6] **Man M. Ho,** Jinjia Zhou, Gang He, Muchen Li, and Lei Li. "SR-CL-DMC: P-frame coding with Super-Resolution, Color Learning, and Deep Motion Compensation." In Proceedings of the IEEE/CVF Conference on Computer Vision and Pattern Recognition Workshops, pp. 124-125. 2020.
(**Top-5 performance among teams that have submitted a factsheet on P-frame Track, CLIC2020**)
"Super-Resolution, Colorization, and Frame Interpolation are applied to recover the missing information of a specific video frame using its previous frame in P-frame compression".

[7] **Minh-Man Ho**, Gang He, Zheng Wang, and Jinjia Zhou. "Down-Sampling Based Video Coding with Degradation-Aware Restoration-Reconstruction Deep Neural Network." In *International Conference on Multimedia Modeling*, pp. 99-110. Springer, Cham, 2020.
(**Oral - Best Paper Runner-up Award**)
Code: https://github.com/minhmanho/rrdncnn
"I investigated the effect of compression degradation in training and proposed a degradation-aware technique to first restore the compressed low-resolution trained with a transitional ground-truth, then up-sample and reconstruct it".

[8] **Minh-Man Ho**, Jinjia Zhou, and Yibo Fan. "Respecting low-level components of content with skip connections and semantic information in image style transfer." In *European Conference on Visual Media Production*, pp. 1-9. 2019.
(**Oral**)
[Paper] [Webpage] [GitHub] [Demo] [Comparison Video]
"This work reveals how skip connections and semantic maps being added as input or being trained as ground-truth will affect the stylized output. Besides, I built an interactive application to visualize the effectiveness of skip connections on generated textures, edges, colors".

Skills

- (*From frequently-used to occasionally-used*) Python, PyTorch, PyTorch-Lightning (I've started to use it recently, it's awesome), Adobe Photoshop, Adobe Lightroom, Caffe, TensorFlow, Audacity.

(Updated on 2021/09/22)