Man Minh Ho

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https://www.flickr.com/photos/sarugraphy

RESEARCH INTERESTS

My research interests lie in computer vision, deep learning, machine learning, and photography.

SKILLS

Languages
Python, HTML (Beginner), Lua (Scripting Lightroom).
(Prior Exp.: Matlab, C/C++, C#, SQL, Java)

Frameworks and Libraries
PyTorch, PyTorch-Lightning, PyTorch Mobile for iOS, OpenCV, Kornia, RabbitMQ, MongoDB. (Prior Exp.: Caffe, TensorFlow, Sk-learn, and Web APIs)

Photo/Video and Audio Editing
Adobe Photoshop, Adobe Lightroom, and Audacity.

Server Management
Set up and maintain CPU/GPU linux servers.

EDUCATION

Ph.D. in Science and Engineering, *Hosei University* 09/2020 – 03/2022
Thesis on Learned Image Restoration. Early Completion. Tokyo, Japan

M.Eng. in Science and Engineering, *Hosei University* 09/2018 – 09/2020
Thesis: Self-Supervised Learning for Video Compression (Thesis Grade: 4.0/4.0) Tokyo, Japan

B.S. (Honors) in Computer Science, *University of Information Technology* 09/2013 – 09/2017
Thesis: Face Recognition in Video using DICA (Thesis Grade: 3:56/4.0) Ho Chi Minh, Vietnam

PROJECTS

Smartphone Photo Scanning
Presented a new dataset DIV2K-SCAN for smartphone-scanned photo restoration. Proposed Domain Simulation to generalize many different shooting devices and environments. Proposed a Semi-Supervised Learning framework to solve limited training data. Obtained better performance compared with Google Photo Scan and Genius Scan. [Demo]

Blending and Retouching Photos with Color Style Transfer
Defined a new color style based on low-level transformation. Proposed a supervised color style transfer. Built Lightroom Plugin for JSON Preset. As a result, Lightroom Preset can be a well-retouched photo. Future work is an application for Image Manipulation (a photo manipulated by me). [Demo]

Solving Video Compression Degradation
Provided a better understanding of Video Compression Degradation. Adopted Super-Resolution, Colorization, and Frame Interpolation for Learned Image/Video Compression. Designed Restoration-Reconstruction Deep Neural Networks (RR-DnCNNs) to improve the compression ratio of a down-sampling-based video coding. [Demo]

Applications for Visually Impaired People
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). [Workflow]

PROFESSIONAL EXPERIENCE

Research Assistant, *Waseda University* 11/2021 – 03/2022
Learned video compression degradation representation for compressed image/video synthesis. Tokyo, Japan

Research Assistant, *Hosei University* 09/2018 – 03/2022
Designed deep learning techniques for video compression. Managed GPU servers and assist other students in their projects. Prepared teaching materials. Tokyo, Japan

Machine Learning Engineer, *EyeQ Tech* 09/2017 – 09/2018
Dealt with real-world problems related to face recognition, multi-face tracking, and object detection using deep learning. Took a key role in deploying deep models for computer vision services. Experienced in Tensorflow, Nginx, RabbitMQ, MongoDB, etc. Participated in interviewing candidates. Was recognized as a "Key Contributor" and promoted/trained to be a team lead. Ho Chi Minh, Vietnam

Amateur Photographer, *Sarugraphy* 2015 – 2018
Learned how to take good photos and use post-processing software such as Photoshop and Lightroom to enhance image color style and quality. Practiced photo shooting with varied devices such as off-camera flash, light reflectors in various in-door and out-door environments. Got paid for freelance work. Ho Chi Minh, Vietnam

Human Management (freelancer), *SouL Magazine* 2014 – 2016
Managed others to meet monthly deadlines. Worked with departments to solve problems. Participated in recruiting and evaluating writers. Ho Chi Minh, Vietnam

AWARDS

Hosei University Science and Engineering Departments Education/Research Promotion Fund Academic Achievement Award 2020, 07/2020
Hosei University
- Presented to a Master's student who achieves Top-1 for Research Performance and GPA in Science and Engineering Departments.

Best Paper Runner-up Award, 01/2020
The 26th International Conference on Multimedia Modeling (MMM)
- Top-2 Rate: 1.17%

Key Contributor, *EyeQ Tech Vietnam* 08/2018
- Awarded to an engineer who has the greatest contribution to the company as well as delivered projects.

The Five-Virtue Student, 12/2016
Vietnam National University - University of Information Technology

PUBLICATIONS

[1] Ryugo Morita, Zhiqiang Zhang, **Man M. Ho**, and Jinjia Zhou, "Interactive Image Manipulation with Complex Text Instructions", Winter Conference on Applications of Computer Vision (**WACV**), 2023.
"*A text-to-image translation application to specify affected regions, change attributes, activate operations such as enlarge, dwindle, and remove objects, and replace the background.*"

[2] **Man M. Ho**, Heming Sun, Zhiqiang Zhang, and Jinjia Zhou, "On Pre-chewing Compression Degradation for Learned Video Compression", Accepted to IEEE International Conference on Visual Communications and Image Processing (**VCIP**), 2022.
"*Pre-chewing training data to enhance learning capability and learning data representation to deal with lack of data.*"

[3] Zhiqiang Zhang, Chen Fu, **Man M. Ho**, Jinjia Zhou, Ning Jiang, and Wenxin Yu, "Text-guided Image Manipulation based on Sentence-aware and Word-aware Network", Accepted to IEEE International Conference on Multimedia & Expo (**ICME**) and AI for Content Creation Workshop (**AI4CC**) - **CVPR**, 2022.
"*Proposed a method to manipulate images by changing adjectives (object's characteristics).*"

[4] **Man M. Ho**, and Jinjia Zhou. "Deep Photo Scan: Semi-Supervised Learning for dealing with the real-world degradation in Smartphone Photo Scanning." In Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (**WACV**), pp. 1880-1889. 2022. [Webpage] [Poster] [Demo]
"A promising baseline for learned smartphone-scanned photo restoration."

[5] **Man M. Ho**, Lu Zhang, Alexander Raake, and Jinjia Zhou, "Semantic-driven Colorization", In ACM SIGGRAPH European Conference on Visual Media Production (**CVMP**), pp. 1-10. 2021. [GitHub]
"Proposed to apply human-like action in coloring a black-and-white image for learned image colorization."

[6] **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. [GitHub]
"An extended version of the RR-DnCNN [9]. Re-designed network architecture for better learning capability."

[7] **Man M. Ho**, and 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. [Webpage] [Demo]
"Proposed a novel color style. Lightroom Preset now can be any well-retouched photos."

[8] Huyen T. T. Bui, **Man M. Ho**, Xiao Peng, Jinjia Zhou, "Japanese Coins and Banknotes Recognition for Visually Impaired People", **VizWiz** Workshop, 2020. [Paper] [Workflow]
"Proposed to use depth estimation for coins/banknotes detection to avoid noise in the background and narrow the depth of interests in case users desire to detect coins/banknotes on a certain surface."

[9] **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 (**CVPR**) Workshops, pp. 124-125. 2020. [Paper]
"Adopted Super-Resolution, Colorization, and Frame Interpolation for P-frame compression."

[10] **Man M. 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 (**MMM**), pp. 99-110. Springer, Cham, 2020. [GitHub]
"Investigated the effect of compression degradation for training. Proposed a new learned down-sampling-based video coding framework."

[11] **Man M. 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 (CVMP), pp. 1-9. 2019. [Webpage]
"*Conducted research on skip connections and semantic maps for image style transfer.*"

COMMUNITY SERVICES

Reviewer for British Machine Vision Conference (BMVC) 2020, 2021
Reviewer for Computer Vision and Pattern Recognition (CVPR) Workshops 2020
Reviewer for International Conference on Computer Vision (ICCV) 2021 (assistant)
Reviewer for Winter Conference on Applications of Computer Vision (WACV) 2021, 2022, 2023
Reviewer for Neural Computing and Applications
Advisory Board for ALS Vietnam (supporting people with Amyotrophic Lateral Sclerosis), 2022

GRANTS AND SCHOLARSHIPS

Research Grant for Doctoral Courses, *Hosei University* 09/2020 – 03/2022

The 100th Year Anniversary Scholarship, *Hosei University* 07/2020

Japan Student Services Organization (JASSO) Scholarship, *JASSO* 10/2019

Daddy Longlegs Scholarship, *Hosei University* 09/2019

Monthly Scholarship for Students in Honors Programs, 09/2013 – 09/2017
Vietnam National University - University of Information Technology

CERTIFICATES

Certificate of Completion for successfully completing the 320 hours Global Software Talent training course and examination on the specialty of Global .NET Developer
issued by FPT Software, 2016.

JST Research Ethics Courses
Report Numbers: JS0000473934 (2018), AP0000575617 (2020).

LANGUAGES

Vietnamese — English

Japanese

REFERENCES

Tuan Hue Thi (My Former Leader), *Principal Applied Scientist*, Microsoft
huetuan1984@gmail.com

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