Param Hanji

Computer Vision | Computer Graphics

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Experience

APPLE | Machine learning engineer @ Camera Algorithms
Dec 2023 – Current | Cambridge, UK

- ➔ Working to improve face rendering across devices for Apple's diverse user base

UNIVERSITY OF CAMBRIDGE | Postdoc with Cengiz Öztireli
Oct 2022 – Nov 2023 | Cambridge, UK

- ➔ Projects on pointcloud generation [3], view synthesis [5], neural optimization [6]
- ➔ Helped design and deliver the MPhil. course on Machine Visual Perception.

META REALITY LABS | Part-time contract with Alex Chapiro
July 2022 – May 2023 | Remote

- ➔ Implemented a flexible tool to calibrate metric parameters on new datasets
- ➔ Worked on a new, improved SOTA video quality metric, ColorVideoVDP [4]

HUAWEI RESEARCH CENTRE | Part-time with Hu Chen
Sept 2020 – Jan 2021 | Remote

- ➔ Studied effect of transfer functions for CV applications under extreme lighting
- ➔ Published a journal paper [9]; successfully submitted a patent with collaborators

UNIVERSITY OF CAMBRIDGE | Research assistant with Rafał Mantiuk
Feb 2019 – Sept 2022 | Cambridge, UK

- ➔ Developed statistical estimators and deep generative models for HDR imaging
- ➔ Helped build a capture-render-display system to pass the "Visual Turing Test" [8]
- ➔ Extensive perceptual evaluations of single-image HDR and neural view synthesis

Selected publications

1. Suchong; Fu, Y.; Yang, J.; **Hanji, P.**; Zhong, F. "CF-GISS: Collision-Free Generative 3D Indoor Scene Synthesis". Under review at ICLR (2024).
2. [pdf] Bikov, K.; Su, S.; Choudhury, D.; [& 4 others]; **Hanji, P.**; Öztireli, C. "Fitness Aware Human Motion Generation". FITML Workshop, NeurIPS (2024).
3. [arxiv] Zhou, C.; Zhong, F.; **Hanji, P.**; [& 5 others]; Öztireli, C. "FrePolad: Frequency-Rectified Latent Diffusion for Point Cloud Generation". ICCV (2024).
4. [link] Mantiuk, R.; **Hanji, P.**; Asano, Y.; & Chapiro, A. "ColorVideoVDP: metric for image, video and display distortions". Siggraph (2024).
5. [link] Liang, H.; Wu, W.; **Hanji, P.**; Banterle, F.; Gao, H.; Mantiuk, R.; Oztireli, C. "Perceptual Quality Assessment of NeRF Methods". Eurographics (2024).
6. [link] Zhong, F.; **Hanji, P.**; [& 6 others]; Öztireli, C. "Neural Fields with Hard Constraints of Arbitrary Differential Order". NeurIPS (2023).
7. [link] **Hanji, P.**; Mantiuk, R.; Eilertsen, G.; Hajisharif, S.; Unger, J. "Comparison of single image HDR—caveats of quality assessment". Siggraph Conference (2022).
8. [link] Zhong, F.; Jindal, A.; Yöntem, Ö.; **Hanji, P.**; Watt, S.; Mantiuk, R. "Reproducing Reality with HDR-MFS Display". Siggraph Asia (2021).
9. [link] **Hanji, P.**; Alam, M. Z.; Giuliani, N.; Chen, H.; Mantiuk, R. "HDR Dataset with Adversarial Illumination for Computer Vision methods". JIST and LIM (2021).
10. [link] **Hanji, P.**; Zhong, F.; Mantiuk, R. "Noise-Aware Merging of HDR Image Stacks without Camera Calibration". AIM Workshop, ECCV (2020).

Software

PROGRAMMING AND ENV
Python • C/C++ • Bash • LaTeX • PyTorch • COLMAP • SLURM

PUBLIC REPOSITORIES
CNF • ColorVideoVDP • FovVideoVDP • HDRutils • pfstools • SimMobility • TSeriesMMA • CUDA-CNN

Education

UNIVERSITY OF CAMBRIDGE
PHD in Computer Science
Oct 2019 - Sept 2022 | Cambridge, UK
[thesis] Statistical estimation for inverse HDR imaging
Supervisor: Rafał Mantiuk
Funded by ERC Grant Horizon 2020

NATIONAL INSTITUTE OF TECHNOLOGY, KARNATAKA
B.Tech. in Information Technology
Aug 2014 - June 2018 | Surathkal, India

Awards

- Wiseman prize, 2023 [link]
- WACV HDR-VIQM, 2023 (1st place) [link]
- ACM Siggraph CVMP, 2022 (best paper) [link]
- Huawei Enter Metaverse, 2022 (2nd place) [link]
- ERC PhD studentship [link]
- Samsung VR Appathon, 2015 (1st place)
- CBSE Certificate of Merit, 2012

Projects supervised

- Fitness-aware diffusion for human motion generation
- Text-conditioned pointcloud generation with diffusion
- Diffusion for image-inpainting
- Image rescaling by probabilistic disentanglement
- Multi-monitor gaze-tracking
- Segmentation by depth and colour