Chen Feng

PhD Student, Visual Information Lab, University of Bristol

+44 (0) 7410410989 | chen.feng@bristol.ac.uk | https://chenfeng-bristol.github.io/ | Google Scholar

Education

University of Bristol *Bristol, UK*
Ph.D in Electrical and Electronic Engineering Dec. 2020 - Present
Supervisor: Professor David Bull and Doctor Fan Zhang

University of Bristol *Bristol, UK*
MSc in Electrical and Electronic Engineering Sep. 2018 - Sep. 2019
Distinction (Top 2) in Image and Video Communications and Signal Processing

University of Science and Technology Beijing (Project 211 University) *Beijing, China*
BSc in Automation and Electrical Engineering (Top 10%) Sep. 2014 - Jul. 2018

Research Projects

Videos Artefact Detection

2023-Present **BVI-Artefact: An Artefact Detection Benchmark Dataset for Streamed Videos** [2]
– The first comprehensive benchmark for detecting artefacts within streamed PGC video.
– A large database considering ten artefact types with associated artefact labels.
– This work is sponsored by **Amazon Research Awards** 2023.

Deep Video Quality Assessment

2021-2023 **RankDVQA: Deep VQA based on Ranking-inspired Hybrid Training**
– A two-stage ranking-inspired training methodology for deep video quality assessment.
– A large-scale VQA training database without performing costly subjective tests.
– The first full reference deep VQA method consistently outperforms VMAF.
– No reference RankDVQA won the **First Prize** of IEEE/CVF WACV 2023 HDR Video Quality Measurement Grand Challenge in the no reference VQA track.
– The paper has been accepted by the IEEE/CVF WACV 2024 [1].

2023-Present **RankDVQA-mini: Knowledge Distillation-Driven Deep VQA** [3]
– The first lightweight deep VQA network to achieve competitive performance.
– A two-phase workflow with model compression and multi-level knowledge distillation.
– This work is sponsored by **Amazon Research Awards** 2023.

Perceptual Video Coding

2021-2022 **ViSTRA3: Video Coding with Deep Parameter Adaptation and Post-Processing**
– Developed a parameter-adaptation framework for deep learning-based video compression that integrates spatial resolution & effective bit-depth adaptation and post-processing.
– Ranks the **Second Place** at the hybrid track in the Grand Challenge on Neural Network-based Video Coding in IEEE ISCAS 2022.
– A paper was published by IEEE ISCAS 2022 [5].

2019-2020 **Video Compression with CNN-based Post-Processing**
– The first CNN-based post-processing approach.
– Improved HDR video compression by multi-frame effective bit depth adaptation [6].
– Proposed a multiple frame-based post-processing framework [7] for enhancing VVC.
– Ranks **Top Six** in Challenge on Learned Image Compression in IEEE/CVF CVPR 2022.
– Papers have been published by IEEE MultiMedia Magazine [8] and IEEE ICME 2020 [9].

Publications (Google Scholar)

[1] **RankDVQA: Deep VQA based on Ranking-inspired Hybrid Training**
C. Feng, D. Danier, F. Zhang and D. Bull. *Accepted by IEEE/CVF WACV 2024*.

[2] **BVI-Artefact: An Artefact Detection Benchmark Dataset for Streamed Videos**
C. Feng, D. Danier, F. Zhang and D. Bull. *arXiv:2312.08859, 2023*.

[3] **RankDVQA-mini: Knowledge Distillation-Driven Deep Video Quality Assessment**
C. Feng, D. Danier, H. Wang, F. Zhang and D. Bull. *arXiv:2312.08864, 2023*.

[4] **Full-reference Video Quality Assessment for User Generated Content Transcoding**
Z. Qi, **C. Feng**, D. Danier, F. Zhang, X. Xu, S. Liu, and D. Bull. *arXiv:2312.12317, 2023*.

[5] **ViSTRA3: Video Coding with Deep Parameter Adaptation and Post Processing**
C. Feng, D. Danier, C. Tan, F. Zhang and D. Bull. *IEEE ISCAS 2022*.

[6] **Enhancing HDR Video Compression through CNN-based Effective Bit Depth Adaptation**
C. Feng, Z. Qi, D. Danier, F. Zhang, X. Xu, S. Liu, and D. Bull. *arXiv:2207.08634, 2022*.

[7] **Enhancing VVC with Deep Learning based Multi-Frame Post-Processing**
D. Danier, **C. Feng**, F. Zhang and D. Bull. *CVPR 5th Challenge on Learned Image Compression 2022*.

[8] **Video Compression With CNN-Based Postprocessing**
F. Zhang, D. Ma, **C. Feng** and D. R. Bull. *IEEE MultiMedia 2021*.

[9] **Enhancing VVC Through CNN-Based Post-Processing**
F. Zhang, **C. Feng** and D. R. Bull. *IEEE ICME 2020*.

Teaching Experience

University of Bristol *Bristol, UK*

Teaching Assistant Feb. 2021 - Present

- Image Processing and Computer Vision
- Immersive Interaction and Audio Design (VR Development)
- Augmenting the Real World (AR Development)

Awards and Honours

1st Prize in IEEE/CVF WACV 2023 HDR VQM Grand Challenge (Host by **Amazon Prime Video**)	2023
UKRI MyWorld Strength Research Students Awards Scheme Scholarship	2023
PhD is funded by the **Amazon Research Awards** 2023	2023
Top Six in the Challenge on Learned Image Compression in IEEE/CVF CVPR 2022	2022
2nd Prize in the Grand Challenge on NN-based Video Coding in IEEE ISCAS 2022	2021
University of Bristol - Bristol PLUS Award	2020

Professional Activities

IEEE Transactions on Image Processing (TIP)	Reviewer
IEEE Transactions on Circuits and Systems for Video Technology (T-CSVT)	Reviewer
IEEE Signal Processing Letters	Reviewer
IEEE Transactions on Multimedia (T-MM)	Reviewer
IEEE International Conference on Multimedia and Expo (ICME)	Reviewer
IEEE International Conference on Image Processing (ICIP)	Reviewer
Picture Coding Symposium (PCS)	Reviewer

Technical Skills

Programming	Python, Matlab, C++, C#, Java, Assembly
Machine Learning	PyTorch, Tensorflow, Generative Models, CNNs, Statistical Analysis
Tools	Unity(VR&AR Development), Git, Docker, IDEs, LaTeX, Raspberry Pi, LabVIEW