

A. Teams and affiliations

NTIRE 2025 team

Title: NTIRE 2025 Low Light Image Enhancement Challenge

Members:

Xiaoning Liu¹ (liuxiaoning2016@sina.com),
Zongwei Wu² (zongwei.wu@uni-wuerzburg.de),
Florin Vasluianu² (florin-alexandru.vasluianu@uni-wuerzburg.de),
Hailong Yan¹ (yhl00825@163.com),
Bin Ren⁴ (bin.ren@unitn.it),
Yulun Zhang³ (yulun100@gmail.com),
Shuhang Gu¹ (shuhangu@gmail.com),
Le Zhang¹ (lezhang@uestc.edu.cn),
Ce Zhu¹ (eczhu@uestc.edu.cn),
Radu Timofte² (radu.timofte@uni-wuerzburg.de)

Affiliations:

- ¹ University of Electronic Science and Technology of China, China
² Computer Vision Lab, University of Würzburg, Germany
³ Shanghai Jiao Tong University, China
⁴ University of Trento, Italy

NWPU-HVI

Title: FusionNet: Multi-model Linear Fusion Framework for Low-light Image Enhancement

Members:

Kangbiao Shi¹ (18334840904@163.com)
Yixu Feng¹ (yixu-nwpu@mail.nwpu.edu.cn)
Tao Hu¹ (taohu@mail.nwpu.edu.cn)
Yu Cao² (caoyu@opt.ac.cn)
Peng Wu¹ (pengwu@nwpu.edu.cn)
Yijin Liang³ (1719198363@qq.com)
Yanning Zhang¹ (ynzhang@nwpu.edu.cn)
Qingsen Yan¹ (qingsenyan@nwpu.edu.cn)

Affiliations:

- ¹ School of Computer Science, Northwestern Polytechnical University, China
² Xi'an Institute of Optics and Precision Mechanics of CAS, China
³ Shanghai Institute of Satellite Engineering, Shanghai 201109, China

Imagine

Title: SG-LLIE: Towards Scale-Aware Low-Light Enhancement via Structure-Guided Transformer Design

Members:

Han Zhou (zhouh115@mcmaster.ca)
Wei Dong (dongw22@mcmaster.ca)
Yan Min (miny13@mcmaster.ca)
Mohab Kishawy (kishawym@mcmaster.ca)

Jun Chen (chenjun@mcmaster.ca)

Affiliations:

McMaster University

pengpeng-yu

Title: Scale-Robust Low-Light Enhancement with Tricks

Members:

Pengpeng Yu^{1,2} (yupp5@mail2.sysu.edu.cn)

Affiliations:

- ¹ School of Electronics and Communication Engineering, Sun Yat-sen University, China
² Pengcheng Laboratory, China

DAVIS-K

Title: Two-stage U-shaped Transformer for Low-light Image Enhancement

Members:

Anjin Park¹ (anjin.park@kopti.re.kr)
Seung-Soo Lee² (sslee1@doowoninc.com)
Young-Joon Park² (yjpark@doowoninc.com)

Affiliations:

- ¹ Intelligent Technology Research Center, Korea Photonics Technology Institute, Korea
² Doowon Electronics and Telecom Co., LTD., Korea

SoloMan

Title: ESDNet-Twins: Twin network using complementary Ensemble strategy

Members:

Zixiao Hu (1812535642@qq.com), Junyv
Liu (1062973385@qq.com), Huilin
Zhang (huilin0914@163.com), Jun
Zhang (202411081539@std.uestc.edu.cn),

Affiliations:

University of Electronic Science and Technology of China, China

Smart210

Title: ESDNet with SimPF block for low light image enhancement

Members:

Fei Wan^{1,2} (mywsi566131@outlook.com), Bingxin Xu^{1,2},
Hongzhe Liu^{1,2}, Cheng Xu^{1,2}, Weiguo Pan^{1,2}, Songyin Dai^{1,2}

Affiliations:

- ¹ Beijing Key Laboratory of Information Service Engineering, Beijing Union University, Beijing, China
² College of Robotics, Beijing Union University, Beijing, China

WHU-MVP

Title: Hierarchical Coarse-to-Fine Network for Low-Light Image Enhancement

Members:

Xunpeng Yi (xpyi2008@163.com),
Qinglong Yan (qinglong_yan@whu.edu.cn),
Yibing Zhang (zhangyibing@whu.edu.cn),
Jiayi Ma (jyma2010@gmail.com),

Affiliations:

Electronic Information School, Wuhan University, China

NJUPT-IPR

Title: Enhanced IIAG-CoFlow: Inter-and Intra-channel Attention Transformer and Complete Flow for Low-light Image Enhancement

Members:

Changhui Hu (hchnjupt@126.com)
Kerui Hu (hukerui7@gmail.com)
Donghang Jing (1023051419@njupt.edu.cn)
Tiesheng Chen (1223056018@njupt.edu.cn)

Affiliations:

College of Automation and College of Artificial Intelligence, Nanjing University of Posts and Telecommunications, Nanjing 210023, China

SYSU-FVL-T2

Title: Improved Scale-Robust Low-light Ultra-High-Definition Image Enhancement

Members:

Zhi Jin^{1,2} (jinz26@mail.sysu.edu.cn), Hongjun Wu¹, Biao Huang¹, Haitao Ling¹, Jiahao Wu¹, Dandan Zhan¹

Affiliations:

¹School of Intelligent Systems Engineering, Shenzhen Campus of Sun Yat-sen University, Shenzhen, Guangdong 518107, China

²Guangdong Provincial Key Laboratory of Fire Science and Intelligent Emergency Technology, Guangzhou 510006, China

ESDNet+: Enhanced Scale-Robust Network for Low-Light Enhancement

Title: ESDNet+: Enhanced Scale-Robust Network for Low-Light Enhancement

Members:

G Gyaneshwar Rao^{2,3} (01fe21bec172@kletech.ac.in), Vijayalaxmi Ashok Aralikatti^{1,3}, Nikhil Akalwadi^{1,3}, Ramesh Ashok Tabib^{2,3}, Uma Mudenagudi^{2,3}

Affiliations:

¹ School of Computer Science and Engineering, KLE Technological University

² School of Electronics and Communication Engineering, KLE Technological University

³ Center of Excellence in Visual Intelligence (CEVI), KLE Technological University

Ensemble-KNights

Title: Transformer or Mamba: Can an Ensemble of Both Shine Brighter in Low-Light Image Enhancement?

Members:

Ruirui Lin¹ (r.lin@bristol.ac.uk)
Guoxi Huang¹ (guoxi.huang@bristol.ac.uk)
Nantheera Anantrasirichai¹ (N.Anantrasirichai@bristol.ac.uk)
Qirui Yang² (yangqirui@tju.edu.cn)

Affiliations:

¹ Visual Information Laboratory, University of Bristol, Bristol, UK

² School of Electrical and Information Engineering, Tianjin University, China

MRT-LLIE

Title: Multi-stage Residual Transformer for Low-light Image Enhancement

Members:

Alexandru Brateanu¹ (alexandru.brateanu@student.manchester.ac.uk)
Ciprian Orhei² (ciprian.orhei@upt.ro)
Cosmin Ancuti² (cosmin.ancuti@upt.ro)

Affiliations:

¹ University of Manchester, Manchester, United Kingdom

² Polytechnic University Timisoara, Timisoara, Romania

Cidaut AI

Title: DarkIR and FLOL

Members:

Daniel Feijoo¹, Juan C. Benito¹, Álvaro García¹, Marcos V. Conde^{1,2} (marcos.conde@uni-wuerzburg.de)

Affiliations:

¹ Cidaut AI, Spain

² Computer Vision Lab, University of Würzburg, Germany

Huabujianye

Title: D-RetinexMix

Members:

Yang Qin (1870602063@qq.com)

Affiliations:

Nanjing University of Information Science and Technology

Lux Thempis

Title: SAdE-ViT: Semantic-Aware Depthwise Vision Transformer for Low Light Image Enhancement

Members:

Raul Balmez¹ (raul.balmez@student.manchester.ac.uk),
Cosmin Ancuti² (cosmin.ancuti@upt.ro),
Ciprian Orhei² (ciprian.orhei@upt.ro)

Affiliations:

¹ University of Manchester, Manchester, United Kingdom

² Polytechnic University Timisoara, Timisoara, Romania

PSU_team

Title: OptimalDiff: High-Fidelity Image Enhancement Using Schrödinger Bridge Diffusion and Multi-Scale Adversarial Refinement

Members:

Anas M. Ali (aaboessa@psu.edu.sa), Bilel Benjdira (bbenjdira@psu.edu.sa), Wadii Boulila (wboulila@psu.edu.sa)

Affiliations:

Robotics and Internet-of-Things Laboratory, Prince Sultan University, Riyadh, Saudi Arabia

hfut-lvgroup

Title: Enhanced RetinexFormer

Members:

Tianyi Mao¹ (mt114514@gmail.com)

Huan Zheng² (yc37928@umac.mo)

Yanyan Wei¹ (weiyy@hfut.edu.cn)

Shengeng Tang¹ (tangsg@hfut.edu.cn)

Dan Guo¹ (guodan@hfut.edu.cn)

Zhao Zhang¹ (cszzhang@gmail.com)

Affiliations:

¹ School of Computer and Information, Hefei University of Technology

² University of Macau

ImageLab

Title: Lightweight Self-Calibrated Pixel-Attentive Network for Low-Light Image Enhancement

Members:

Sabari Nathan¹ (sabarinathantce@gmail.com)

K Uma² (juma.k@sasi.ac.in)

A Sasithradevi³ (sasithradevi.a@vit.ac.in)

B Sathya Bama⁴ (sbece@tce.edu)

S. Mohamed Mansoor Roomi⁴ (smmroomi@tce.edu)

Affiliations:

¹ Couger In ,Japan

² Sasi Institute of Technology & Engineering, India

³ Vellore Institute of Technology, India

⁴ Thiagarajar college of engineering, India

AVC2

Title: MobileIE: Towards Efficient Real-Time Image Enhancement for Mobile Devices.

Members:

Ao Li¹ (aoli@std.uestc.edu.cn)

Xiangtao Zhang¹ (xiangtaozhang@std.uestc.edu.cn)

Zhe Liu¹ (liuzhe@std.uestc.edu.cn)

Yijie Tang² (tangyijie@std.cqu.edu.cn)

Jialong Tang³ (Tangjialong20@163.com)

Affiliations:

¹ University of Electronic Science and Technology of China, China

² Chongqing University, China

³ Zhejiang University, China

LR-LL

Title: An Efficient AI Solution for Low-Light Image Enhancement on Mobile Devices

Members:

Zhicheng Fu (zcfu@lenovo.com)

Gong Chen (gochen24@motorola.com)

Joe Nasti (joenasti@motorola.com)

John Nicholson (jnichol@lenovo.com)

Affiliations:

Lenovo Research

X-L

Title: Enhanced ESDNet

Members:

Zeyu Xiao¹ (zeyuxiao1997@163.com)

Zhuoyuan Li² (zhuoyuanli@mail.ustc.edu.cn)

Affiliations:

¹ National University of Singapore

² University of Science and Technology of China

Team_IITRPR

Title: IllumiNet: A Lightweight Approach for Lowlight Image Enhancement

Members:

Ashutosh Kulkarni¹ (ashutosh.20eez0008@iitrpr.ac.in)

Prashant W. Patil² (pwpatil@iitg.ac.in)

Santosh Kumar Vipparthi¹ (skvipparthi@iitrpr.ac.in)

Subrahmanyam Murala³ (muralas@tcd.ie)

Affiliations:

¹CVPR Lab, Indian Institute of Technology Ropar, India

²MFSDSAI, Indian Institute of Technology Guwahati, India

³CVPR Lab, School of Computer Science and Statistics, Trinity College Dublin, Dublin, Ireland

JHC-Info

Title: RetinexRWKV: A Streamlined Linear Attention Mechanism to Substitute Self-Attention

Members:

Duan Liu¹ (liuduanchn@jhc.edu.cn)

Weile Li¹ (alic2591709191@gmail.com)

Hangyuan Lu¹ (lhyhziee@163.com)

Rixian Liu¹ (liurixian@163.com)

Tengfeng Wang² (wangtf@cqupt.edu.cn)

Jinxing Liang³ (jxliang@wtu.edu.cn)

Chenxin Yu³ (3505756463@qq.com)

Affiliations:

¹ Infomation Engineering College, Jinhua University of Vocational Technology

² School of Software Engineering, Chongqing University of Posts and Telecommunications

³ School of Computer Science and Artificial Intelligence, Wuhan Textile University

Table 2. Training configurations for different models. LR represents learning rate in training process.

Model	Hardware	Initial/Final LR
RetinexFormer [6]	Tesla A100	$2 \times 10^{-4} \rightarrow 1 \times 10^{-6}$
ESDNet [54]	Tesla A100	$2 \times 10^{-4} \rightarrow 1 \times 10^{-6}$
CIDNet [50]	RTX 4090	$1 \times 10^{-4} \rightarrow 1 \times 10^{-7}$



Figure 4. The pipeline of the ESDNet-Twins.

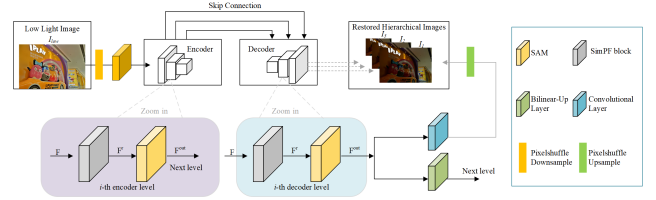


Figure 5. ESDNet [54] with SimPFblock [47] for low light image enhancement.

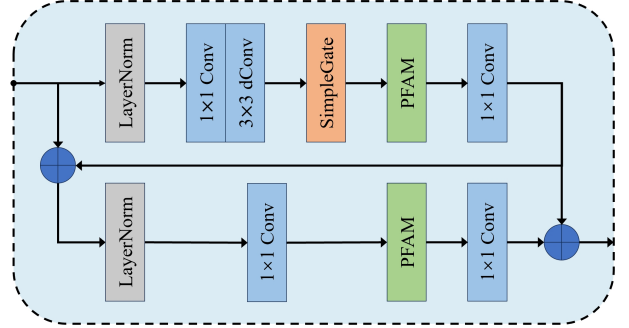


Figure 6. Illustration of the SimPFblock [47].

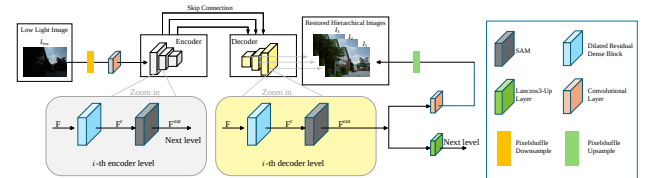


Figure 7. The backbone network used in our method. (Reproduced from ESDNet [54]).

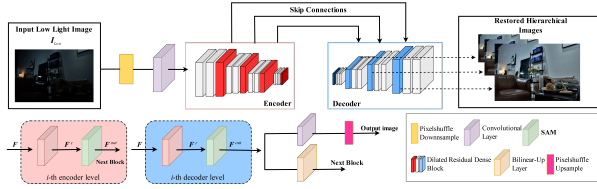


Figure 8. Architecture of the proposed ESDNet+.

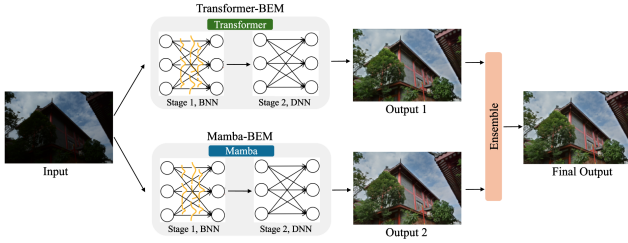


Figure 9. Overall framework of ENsemble BEM [21] (EN-BEM).

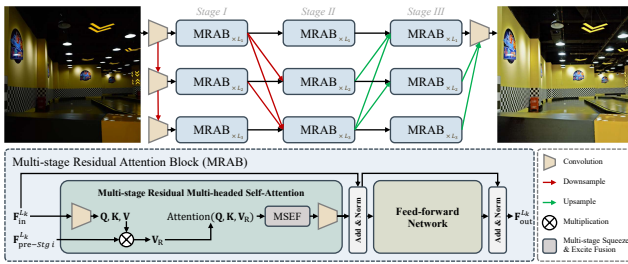


Figure 10. Overall framework of our Multi-stage Residual Transformer (MRT).

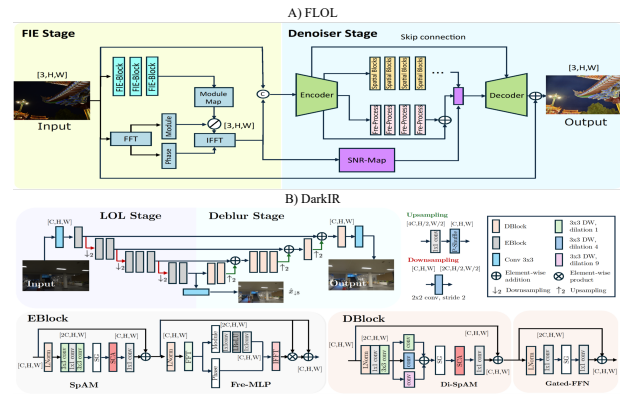


Figure 11. Overview of the two original solutions. We implement Fourier frequency information in both cases. In A), we employ that feature to obtain a lightweight model capable of processing challenge images with a mean time of only **0.15 s per image** and obtaining **24.15 dB** and **0.82** of PSNR and SSIM, respectively. In B), we expose a more complex model which reaches better values in evaluation metrics such as PSNR, SSIM and LPIPS – shown in Tab. 1.

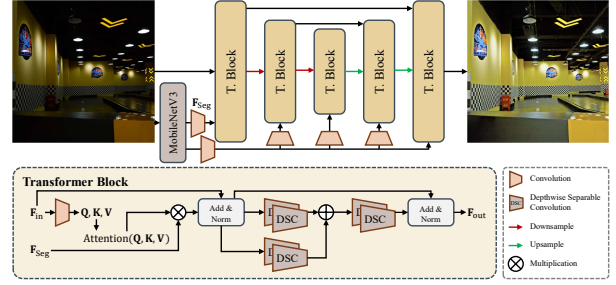


Figure 12. Overall framework of our Semantic-Aware Depthwise Vision Transformer (SADe ViT).

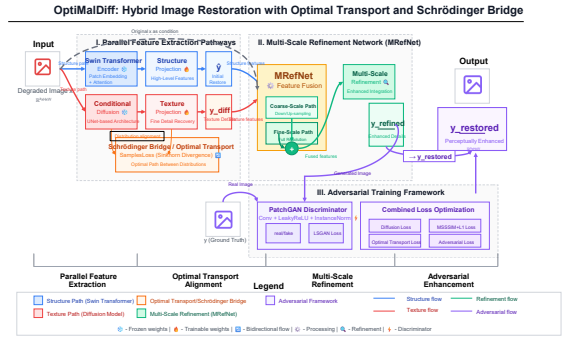


Figure 13. Overview of the OptiMalDiff architecture combining Schrödinger Bridge diffusion, transformer-based feature extraction, and adversarial refinement.

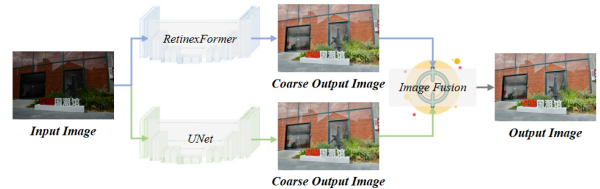


Figure 14. Overview of the proposed model fusion strategy for low-light image enhancement.

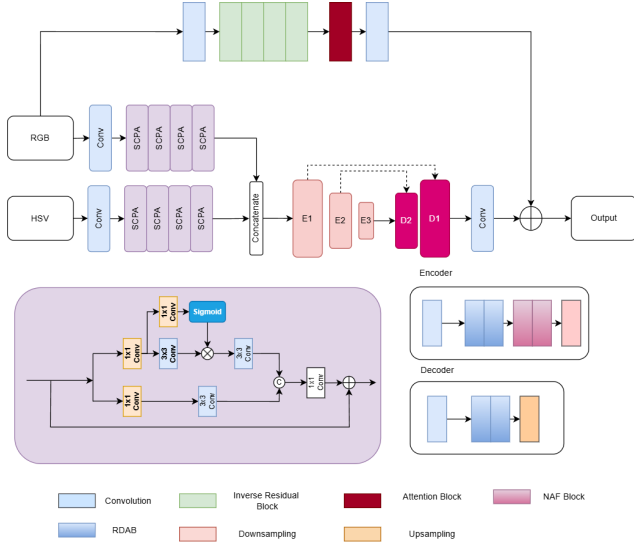


Figure 15. Overview of the Proposed Lightweight Self-Calibrated Pixel-Attentive Network model.

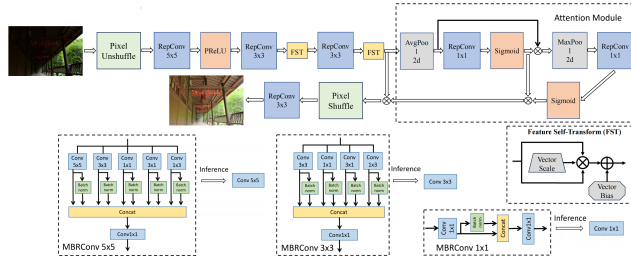


Figure 16. General method flow chart.

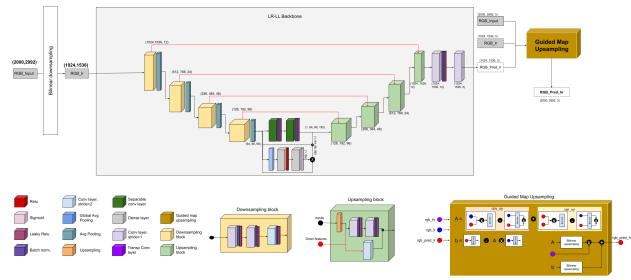


Figure 17. The high-level architecture of Team LR-LL.

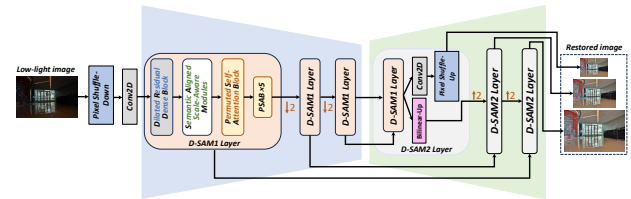


Figure 18. Overview of the proposed pipeline of Team X-L.

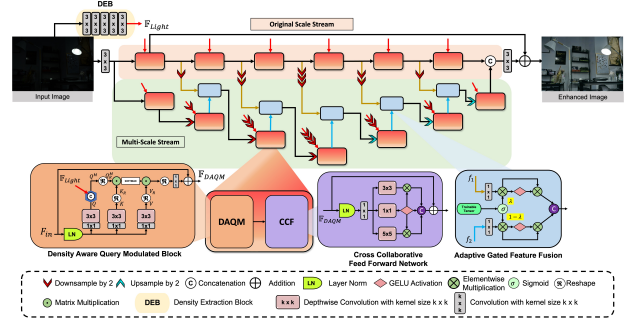


Figure 19. Overview of the IllumiNet for Lowligh Image Enhancement.

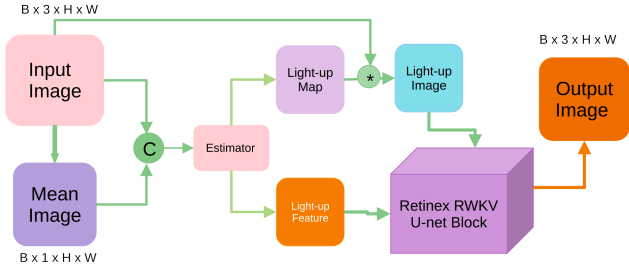


Figure 20. Overview of the RetinexRWKV of Team JHC-Info.

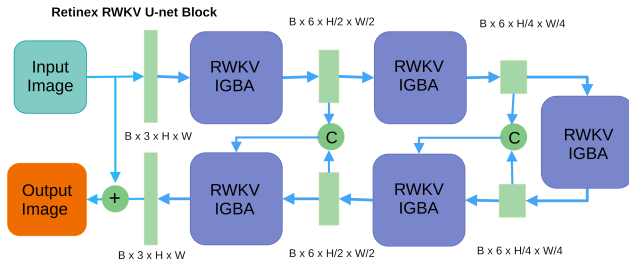


Figure 21. unetblock of the RetinexRWKV of Team JHC-Info.

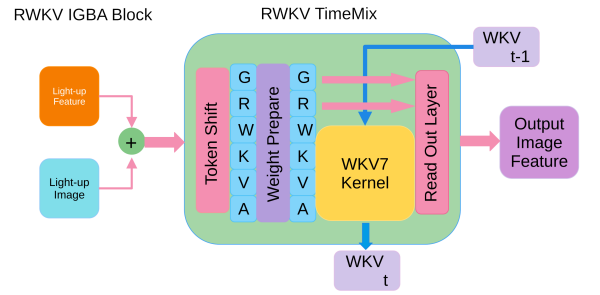


Figure 22. RWKV-v7 timemix of the RetinexRWKV of Team JHC-Info.