SUPPLEMENTARY MATERIAL

Thermal Image Super-Resolution Challenge - PBVS 2021

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Jiaxin Yao, Rongyuan Wu, Kai Feng, Ning Li, Yongqiang Zhao,
Heena Patel, Vishal Chudasama, Kalpesh Prajapati, Anjali Sarvaiya,
Kishor P. Upla, Raghavendra Ramachandra, Kiran. Raja, Christoph Busch,
Feras Almasri, Thomas Vandamme, Olivier Debeir, Nolan B. Gutierrez, Quan H. Nguyen, William J. Beksi

1. Introduction

This document presents the eleven architectures proposed by the nine teams that participated in the second Thermal Image Super-Resolution challenge. The challenge has been organized in the framework of the PBVS 2021 workshop, CVPR 2021.

2. TISR 2021 Teams and Affiliations

Members: Rafael Rivadeneira[1] (rrivaden@espol.edu.ec), Angel Sappa[1,2] and Boris Vintimilla[1]
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[2]Computer Vision Center, Bellaterra, Barcelona, Spain.

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Affiliation: Couger Inc, Japan.

A.2. CVC:
Members: Armin Mehri (amehri@cvc.uab.es) and Parichehr Behjati Ardakani.
Affiliation: Computer Vision Center, Campus UAB, Bellaterra, Barcelona, Spain.

A.3. ISESL-CSIO:
Members: Anurag Dalal[1,2] (anurag.dalal59@gmail.com) and Aparna Akula[2].
Affiliations: [1]Central Scientific Instruments Organization, Chandigarh; [2]Indian Institute of Engineering Science and Technology, Shibpur.

A.4. MNNIT:
Members: Darshika Sharma (darshika@mnnit.ac.in), Shashwat Pandey and Basant Kumar.
Affiliation: MNNIT Allahabad, Prayagraj, India.

A.5. NPU-MPI-LAB:
Members: Jiaxin Yao, Rongyuan Wu (rongyuanwu@mail.nwpu.edu.cn), Kai Feng, Ning Li and Yongqiang Zhao.
Affiliation: Northwestern Polytechnical University.

A.6. SVNIT_NTNU:
Members: Heena Patel[1] (hpatel1323@gmail.com), Vishal Chudasama[1], Kalpesh Prajapati[1], Anjali Sarvaiya[1], Kishor P. Upla[1], Raghavendra Ramachandra[2], Kiran. Raja[2] and Christoph Busch[2].
Affiliations: [1]SVNIT, Surat, India; [2]NTNU, Gjøvik, Norway.

A.7. ULB-LISA:
Members: Feras Almasri (falmasri@ulb.ac.be), Thomas Vandamme and Olivier Debeir.
Affiliation: Universite Libre de Bruxelles, Belgium.

A.8. UTA-RVL-1:
Members: Nolan B. Gutierrez (nolan.gutierrez@mavs.uta.edu) and William J. Beksi.
Affiliation: University of Texas at Arlington, United States.

A.9. UTA-RVL-2:
Members: Quan H. Nguyen (quan.nguyen4@mavs.uta.edu) and William J. Beksi.
Affiliation: University of Texas at Arlington, United States.

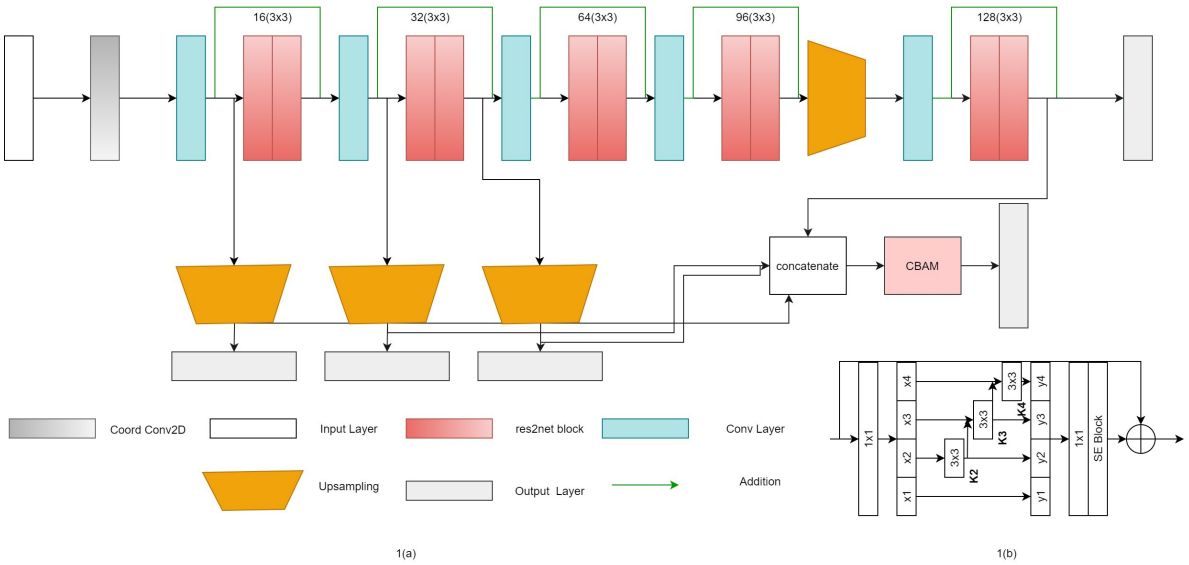


Figure 1: Architecture proposed by COUGER AI team.

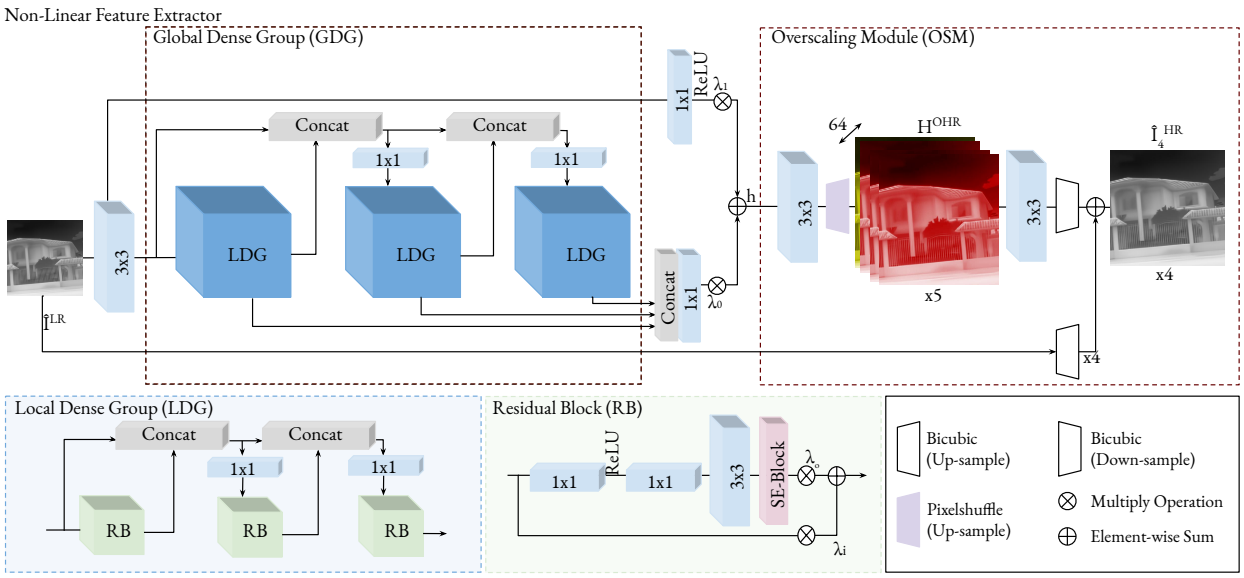


Figure 2: Architecture proposed by CVC team.

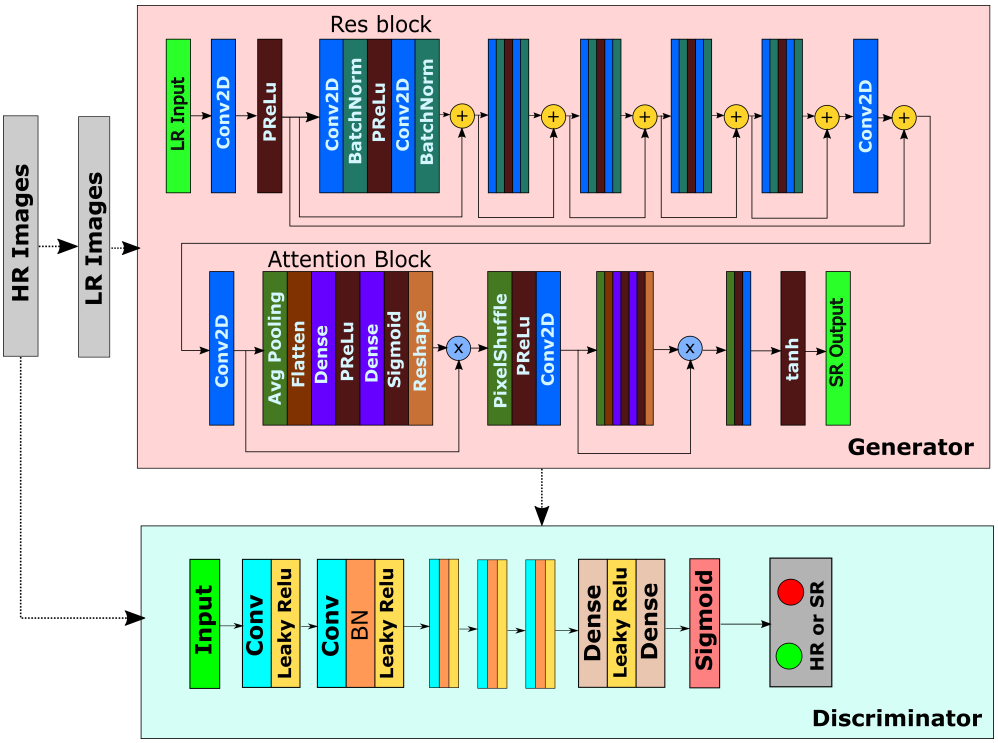


Figure 3: Architecture proposed by ISESL-CSIO team.

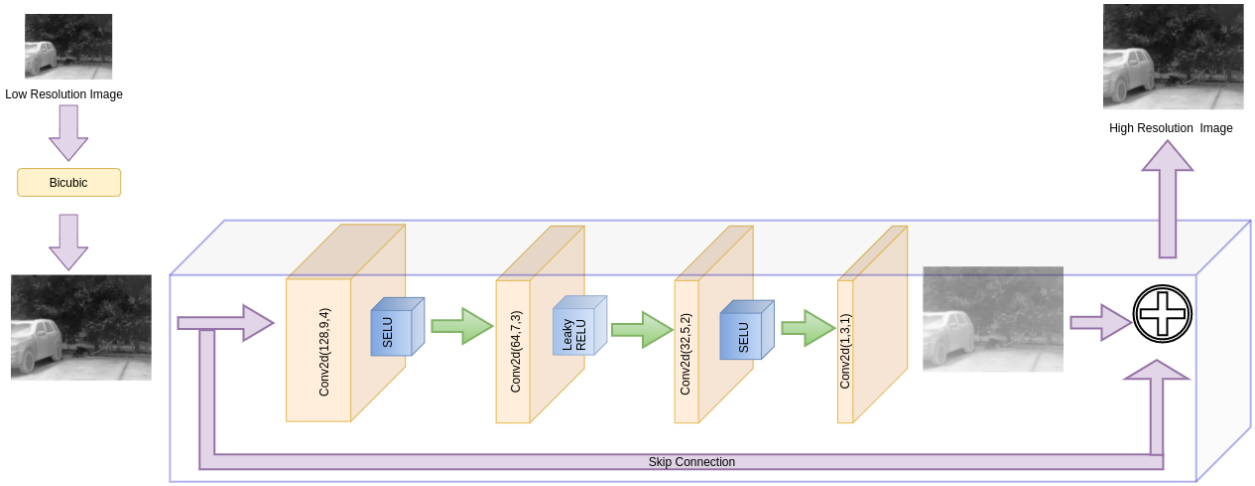


Figure 4: Architecture proposed by MNNIT team.

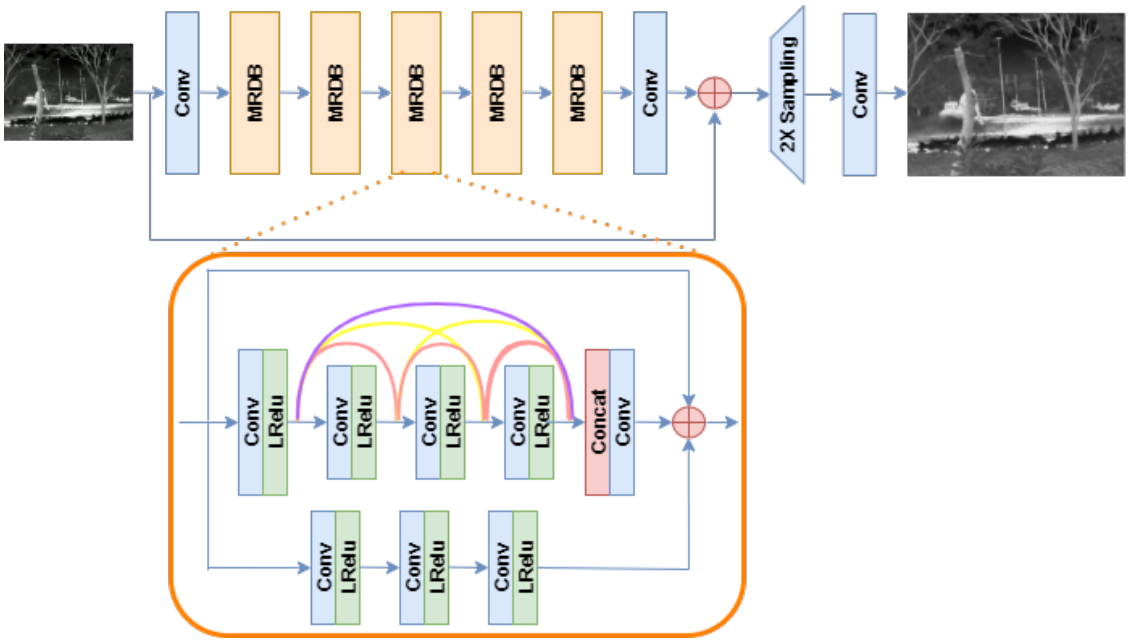


Figure 5: Architecture proposed by NPU-MPI-LAB team for evaluation 1.

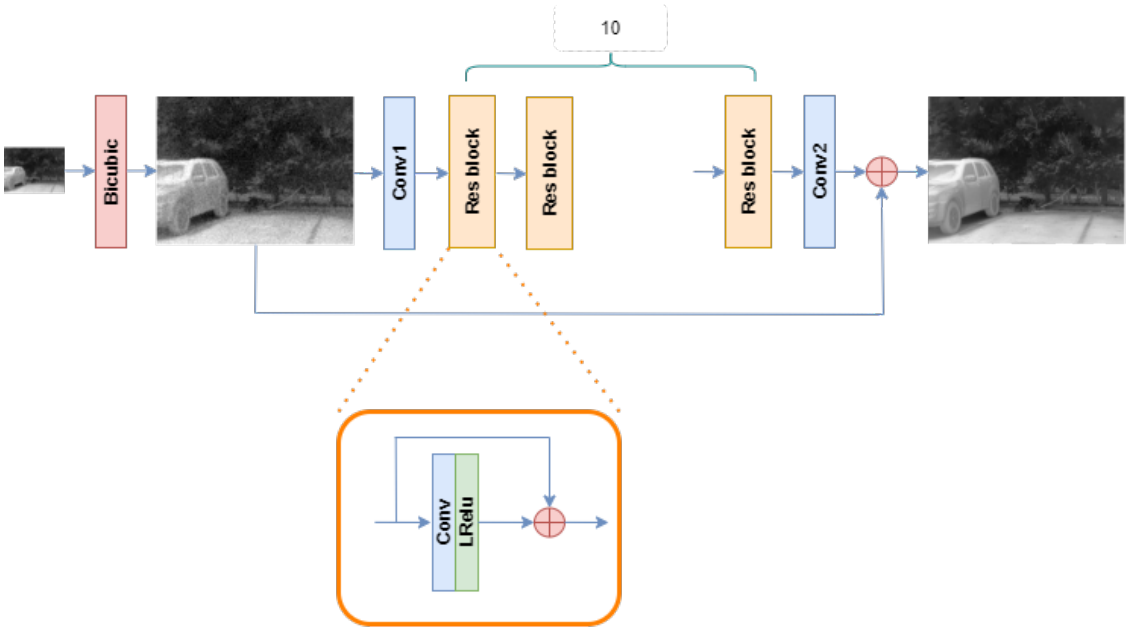
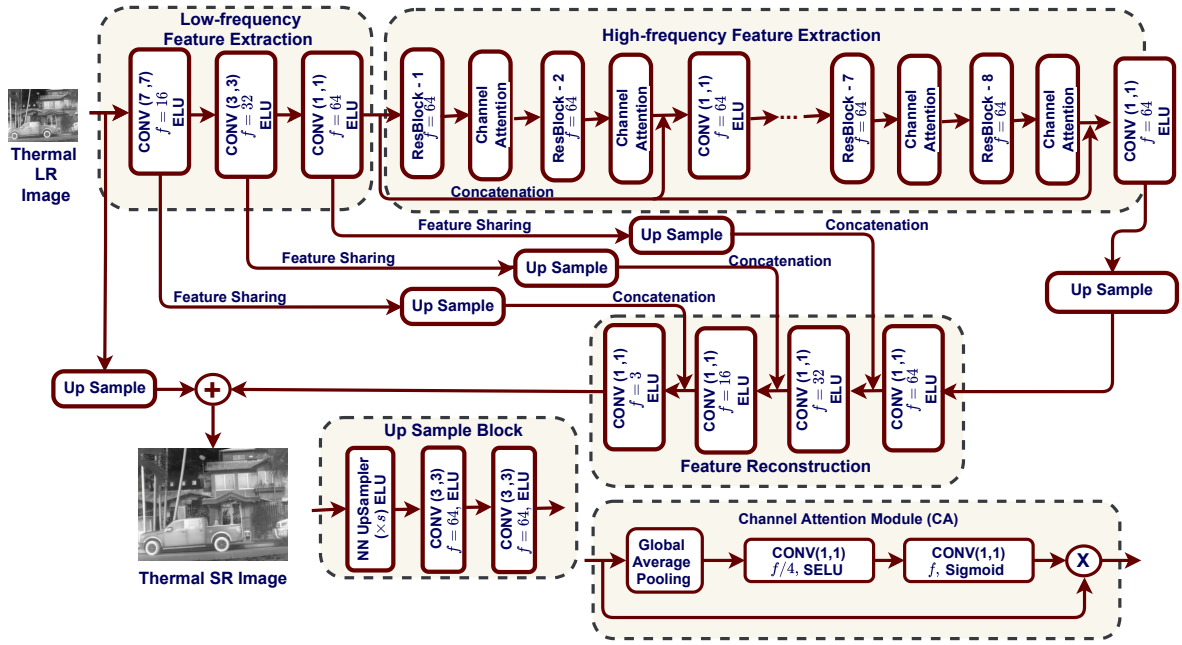
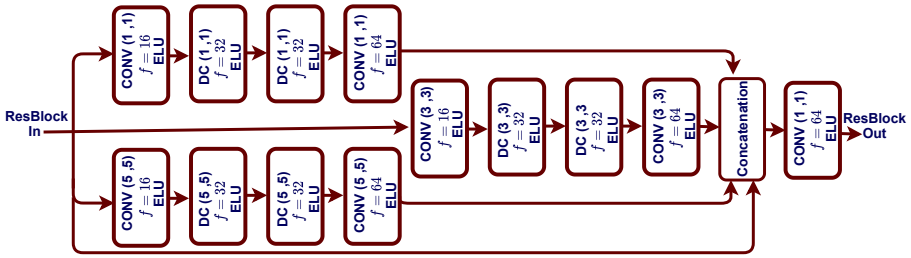


Figure 6: Architecture proposed by NPU-MPI-LAB team for evaluation 2.

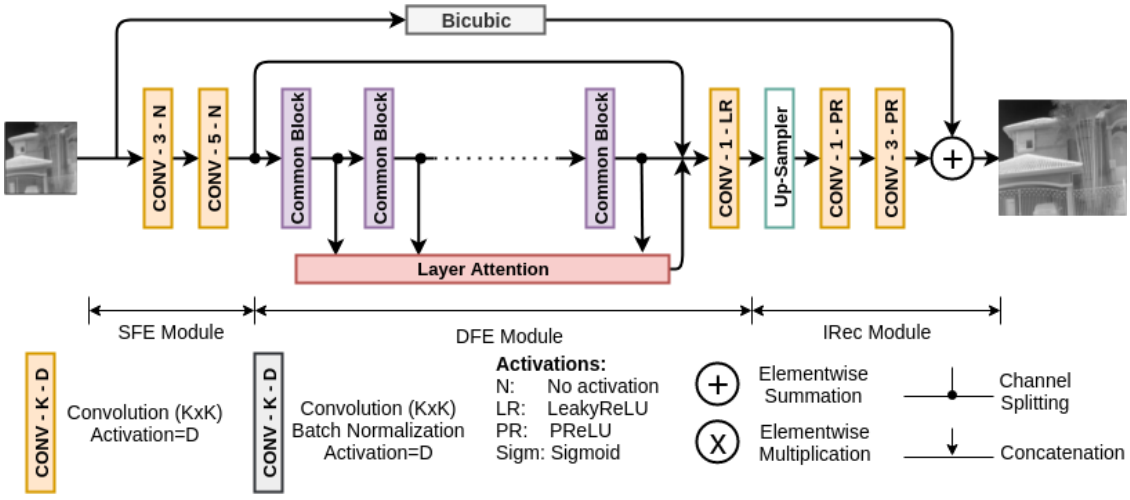


(a) The block schematic of the proposed architecture for scaling factors $\times 4$ and $\times 2$ (i.e., Track-1 & Track-2)

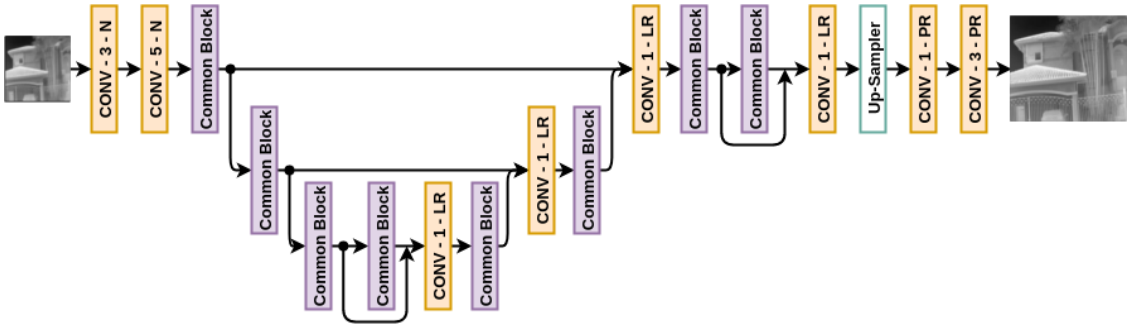


(b) The design of the ResBlock used in the proposed model.

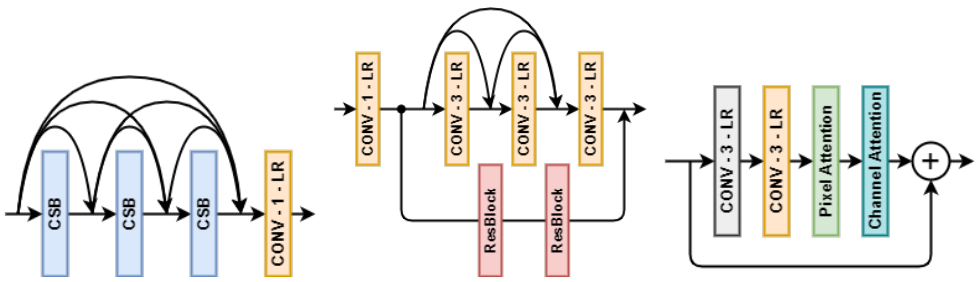
Figure 7: First architecture proposed by SVNIT_NTNU team (**winner at evaluation 1**).



(a) CNN framework for scaling factors $\times 4$ and $\times 2$ (i.e., Track-1 & Track-2)

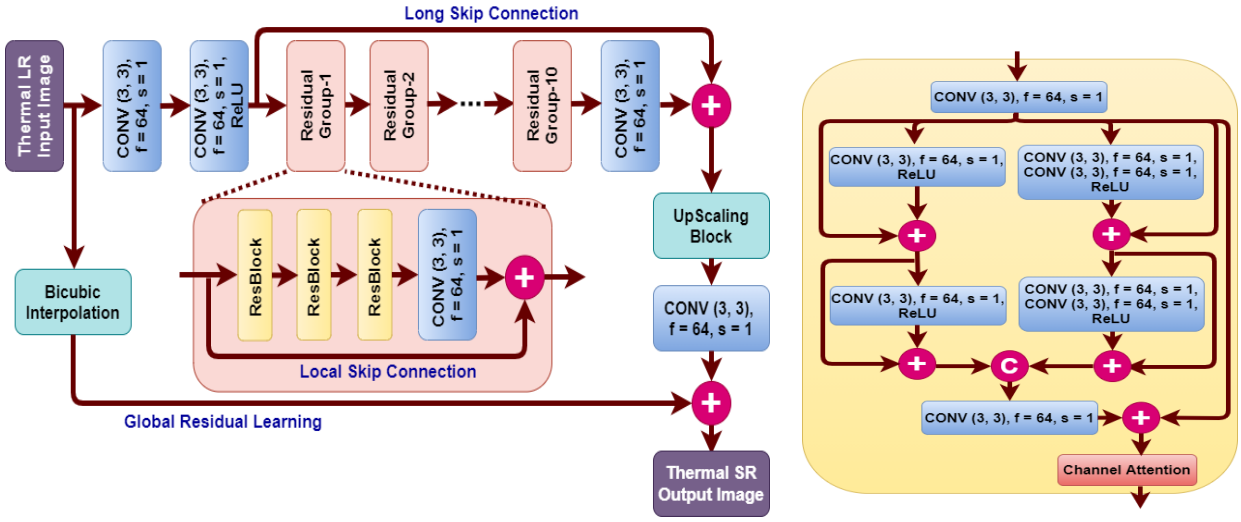


(b) UNet based framework for scaling factor $\times 2$ (i.e., Track-2)



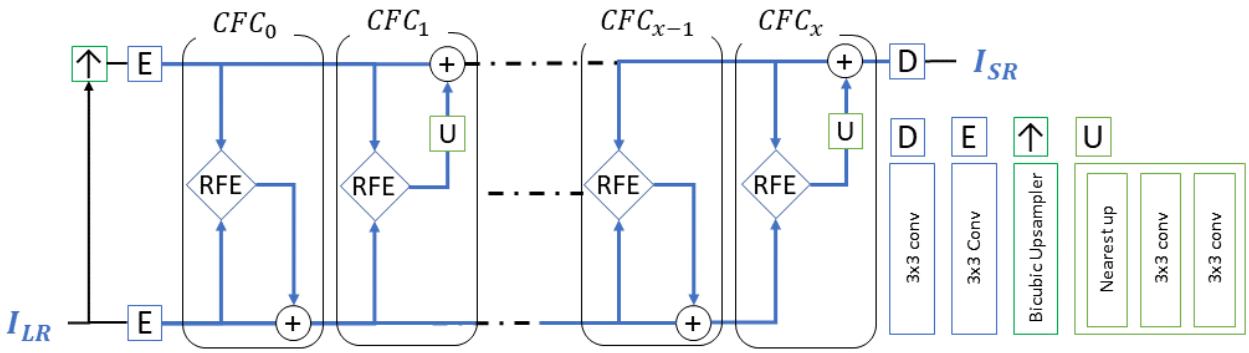
(c) Common Block (CB) (d) Channel Spliting Block (CSB) (e) Residual Block (ResBlock)

Figure 8: Second architecture proposed by SVNIT_NTNU team.

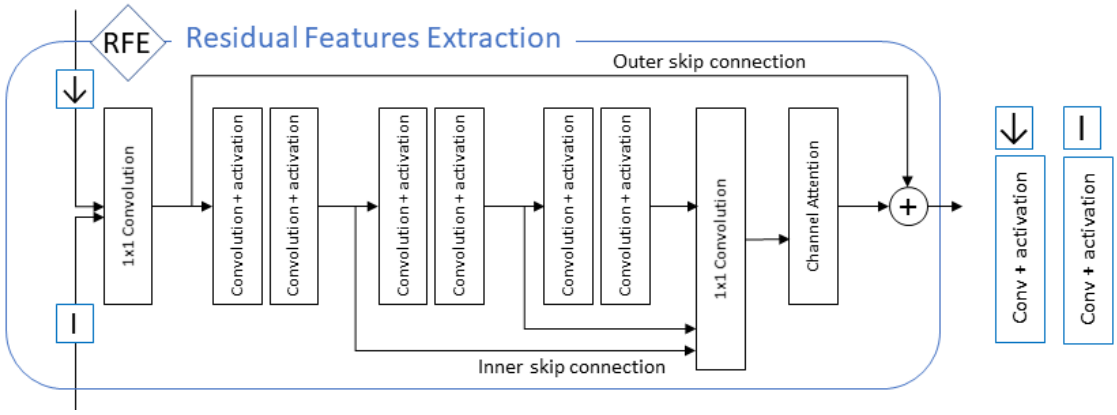


(a) Network architecture design (b) ResBlock design

Figure 9: Third architecture proposed by SVNIT_NTNU team.



(a) Network architecture design



(b) Residual Feature Extraction Module

Figure 10: Architecture proposed by ULB-LISA team (**winner at evaluation 2**).

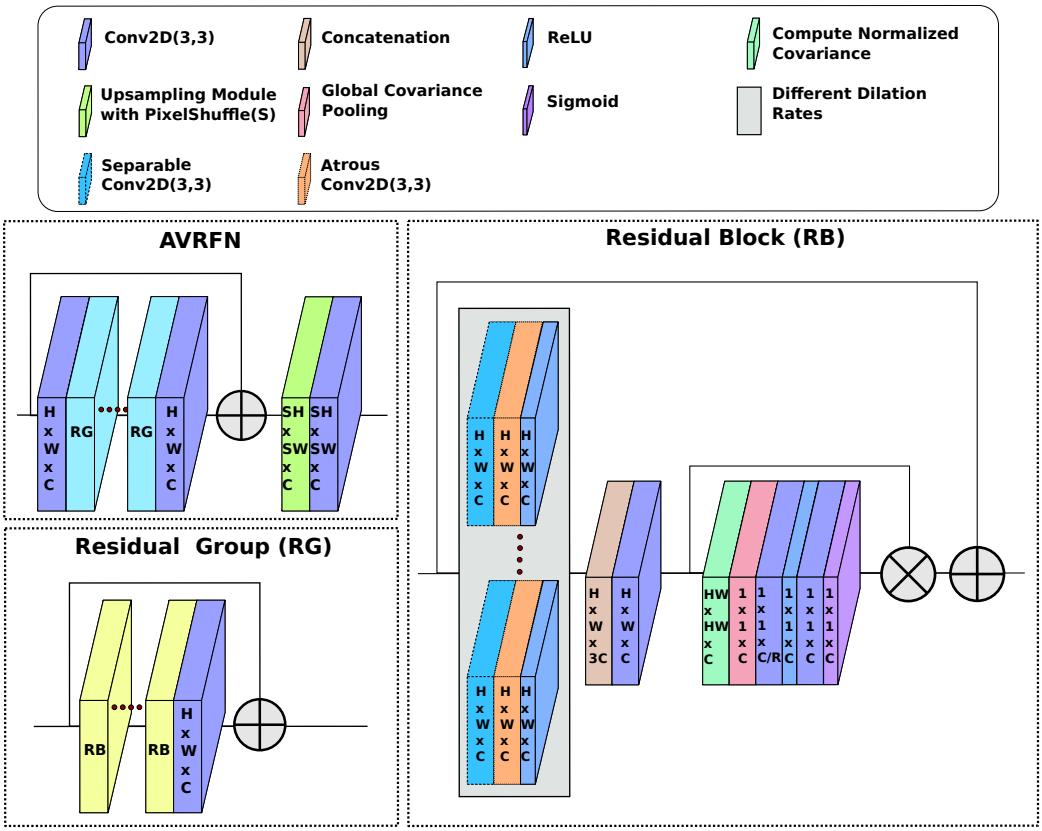


Figure 11: Architecture proposed by RVL-UTA-1 team.

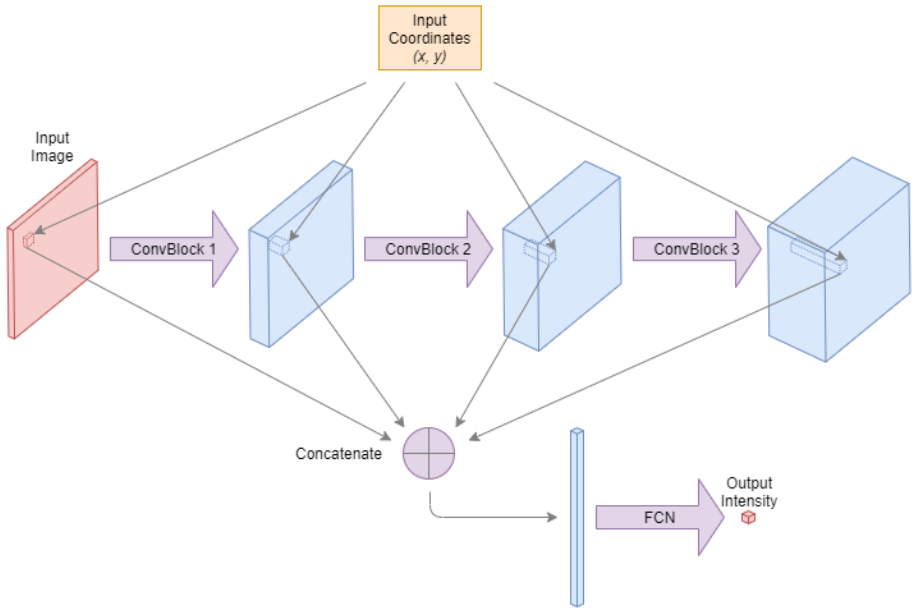


Figure 12: Architecture proposed by RVL-UTA-2 team.