

Ram Prabhakar Kathirvel

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RESEARCH INTERESTS

Primary Areas: Computer Vision, Computer Graphics, Image Processing, Machine Learning

Secondary Areas: Multimedia, Remote Sensing

RESEARCH EXPERIENCE

Johns Hopkins University

Baltimore, MD

Assistant Research Scientist, MINDS, WSE

July 2024 – present

MINDS Postdoctoral Fellow

July 2022 – June 2024

Advisor: Prof. Rama Chellappa

TCS Innovation Labs

Bengaluru, India

Researcher

April 2021 – June 2022

Mentor: Dr. Jayavardhana Gubbi

EDUCATION

Indian Institute of Science

Bengaluru, India

Ph.D. in Data Sciences

April 2021

Thesis: Advances in High Dynamic Range Imaging using Deep Learning methods

Advisor: Prof. R. Venkatesh Babu

National Institute of Technology, Rourkela

Rourkela, India

M. Tech. in Electronic Systems Engineering

Aug. 2012 – July 2014

K.L.N College of Engineering (affiliated to Anna University)

Madurai, India

B. E. in Electronics and Communication Engineering

Aug. 2006 – July 2010

SELECTED HONORS AND AWARDS

IAPR Best Biometrics Student Paper Award, IJCB

2024

Best Student Paper Award (Runner-up), BMVC

2021

Doctoral Consortium Award, CVPR

2020

Microsoft Research India travel grant

2017

ACM MM travel grant

2017

IISc SPCOM travel grant

2017

Qualcomm Innovation India Fellowship Finalist

2016

TEACHING EXPERIENCE

Instructor, **Machine Perception (EN.520.465/665)**

Johns Hopkins University

Fall 2024

Co-instructor, **Machine Perception (EN.520.465/665)**

Johns Hopkins University

Fall 2023

Teaching Assistant, **Deep Learning for Computer Vision**

Dept. of Computational and Data Sciences, Indian Institute of Science

Jan. 2018 - Apr. 2018

Teaching Assistant, **Embedded System and Real Time Laboratory**

Dept. of Electrical Engineering, NIT-Rourkela

Sept. 2013 - Dec. 2013

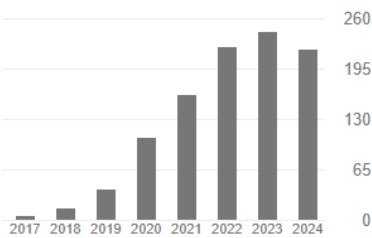
PUBLICATIONS (GOOGLE SCHOLAR PROFILE)

Journal Papers

1. S. Huang, **K. R. Prabhakar**, Y. Guo, C.P. Lau, and R. Chellappa, "Whole-body Detection, Recognition and Identification at Altitude and Range", IEEE Transactions on Biometrics, Behavior, and Identity Science (TBIOM) 2024.
2. **K. R. Prabhakar***, S. Agarwal*, and R. V. Babu, "Self-Gated Memory Recurrent Network for Efficient Scalable HDR Deghosting", IEEE Transactions on Computational Imaging 2021.
3. N. Awasthi, **K. R. Prabhakar**, S. K. Kalva, M. Pramanik, R. V. Babu, and P. K. Yalavarthy, "PA-Fuse: A Deep Supervised Approach for Fusion of Photoacoustic Images with Distinct Reconstruction Characteristics", Journal of Optical Society of America, Biomedical Optics Express 2019.

Cited by

	All	Since 2019
Citations	1019	995
h-index	8	8
i10-index	7	7



Conference Papers

4. S. Huang, **K. R Prabhakar**, Y. Guo, R. Chellappa, and C. Peng, "VILLS : Video-Image Learning to Learn Semantics for Person Re-Identification", in *WACV 2025*.
5. J. Xu, M. Liao, **K. R Prabhakar** and V. M. Patel, "Leveraging Thermal Modality to Enhance Reconstruction in Low-Light Conditions" in *ECCV 2024*.
6. B. Pal*, A. Kannan*, **K. R Prabhakar**, A. O. Toole, R. Chellappa, "GAMMA-FACE: GAussian Mixture Models Amend Diffusion Models for Bias Mitigation in Face Images" in *ECCV 2024*.
7. Z. Wang, J. Liu, **K. R Prabhakar**, C. Lau, and R. Chellappa, "HyperGait: A Video-based Multitask Network for Gait Recognition and Human Attribute Estimation at Range and Altitude". in *IJCB 2024*
8. B. Pal, **K. R Prabhakar**, A. Roy, A. O. Toole, R. Chellappa, "DiversiNet: Mitigating Bias in Deep Classification Networks Across Sensitive Attributes through Diffusion-Generated Data". in *IJCB 2024*.
9. Y. Guo, S. Huang, **K. R Prabhakar**, C. Lau, R. Chellappa, and C. Peng, "Distillation-guided Representation Learning for Unconstrained Gait Recognition", in *IJCB 2024*. (**IAPR Best Biometrics Student Paper Award**).
10. C. Banolia, **K. R Prabhakar**, S. Deshpande, "Monitoring Urban Flooding Using SAR - A Mumbai Case Study", in Data Management, Analytics and Innovation: Proceedings of *ICDMAI 2023*.
11. M. Singh, **K. R Prabhakar**, P. Vishwanath, M. Poduval, A Pal, J Gubbi, V H Krishna, J Gubbi, A Pal, and P Balamuralidhar, "A Few-shot approach to MRI-based Knee Disorder Diagnosis using Fuzzy Layers", in The Indian Conference on Computer Vision, Graphics and Image Processing (*ICVGIP*), IIT Gandhinagar, Gujarat, India, December 2022. (**ORAL**, 27% acceptance rate)
12. **K. R Prabhakar**, V H Krishna, J Gubbi, A Pal, and P Balamuralidhar, "Few-Shot Cross-Sensor Domain Adaptation between SAR and Multispectral Data", in International Geoscience and Remote Sensing Symposium (*IGARSS*), Kuala Lumpur, Malaysia, July 2022.
13. **K. R Prabhakar***, V H Krishna*, J Gubbi, A Pal, and P Balamuralidhar, "Improving SAR and Optical Image Fusion for LULC Classification with Domain Knowledge", in International Geoscience and Remote Sensing Symposium (*IGARSS*), Kuala Lumpur, Malaysia, July 2022.
14. **K. R Prabhakar**, V. Vinod*, N. R. Sahoo*, and R. V. Babu, "Few-shot Domain Adaptation for Low Light RAW Image Enhancement", in British Machine Vision Conference (*BMVC*) 2021. (**ORAL**, **Best Student Paper Award - Runner-up**)
15. V Vinod, **K. R Prabhakar**, R. V Babu, and A Chakraborty, "Multi-Domain Conditional Image Translation: Translating Driving Datasets from Clear-Weather to Adverse Conditions", in 1st ILDAV workshop, *ICCV 2021* (Online).
16. **K. R Prabhakar**, V H Krishna, M Nayak, J Gubbi, and P Balamuralidhar, "Multi-scale Attention Guided Recurrent Neural Network for Deformation Map Forecasting", in *SPIE RS Symposium 2021*, Madrid, Spain. (**ORAL**)
17. **K. R Prabhakar**, G. Senthil*, S. Agarwal*, R. V. Babu, and R. S. Gorthi, "Labeled from Unlabeled: Exploiting Unlabeled Data for Few-shot Deep HDR Deghosting". in *Computer Vision and Pattern Recognition (CVPR) 2021*.
18. **K. R Prabhakar**, S. Agarwal, D. Singh, B. Ashwath, and R. V. Babu, "Towards Practical and Efficient High-Resolution HDR Deghosting with CNN". in *European Conference on Computer Vision (ECCV)* online, 2020 (27% acceptance rate).
19. **K. R Prabhakar**, A. Ramasamy, S. Bhambri, J. Gubbi, R. V. Babu, and B. Purushothaman, "CDNet++: Improved Change Detection with Deep Neural Network Feature Correlation", in *IEEE International Joint Conference on Neural Networks (IJCNN)*, Glasgow, Scotland, July 2020.
20. **K. R. Prabhakar***, R. Arora*, A. Swaminathan, K. P. Singh, and R. V. Babu, "A Fast, Scalable and Reliable Deghosting Method for Extreme Exposure Fusion", in *International Conference on Computational Photography (ICCP)*, Tokyo, Japan, May 2019 (**ORAL**, 30% acceptance rate).

21. **K. R Prabhakar**, V. S. Srikar and R. V. Babu, "DeepFuse: A Deep Unsupervised Approach for Exposure Fusion with Extreme Exposure Image Pairs", in *International Conference on Computer Vision (ICCV)*, Venice, Italy, October 2017 (28% acceptance rate).
22. **K. R Prabhakar** and R. V. Babu, "Ghosting-Free Multi-Exposure Image Fusion in Gradient Domain", in *Proc. ICASSP*, Shanghai, China, March 2016.
23. **K. R Prabhakar** and R. V. Babu, "Ghosting-Free HDR for Dynamic Scenes via Shift-maps", in *Proc. ICVGIP*, Guwahati, India, December 2016.

Preprint

24. R. Chand, R. Arora, **K. R Prabhakar**, and R. V. Babu, "CapsFlow: Optical Flow Estimation with Capsule Networks", arXiv:2304.00306.

Manuscripts under review

25. G. N. Nithin*, K. Narayan*, **K. R Prabhakar**, *et al.*, "Improved Representation Learning for Unconstrained Face Recognition".

PATENTS

1. *Method and System for Semantic Change Detection using Deep Neural Network Feature Correlation* - US Patent No. 11200657 - Date of Patent: 14-Dec-2021.
2. *Method and System for Forecasting Deformation Maps from SAR Images using Multi-scale Attention Guided RNN*.
3. *Method and System for Land Use Land Cover (LULC) Guided SAR-To-RGB Image Translation*.

ACADEMIC SERVICE

- Reviewer for IEEE TIP, TCI, TCSVT, Access
- Reviewer for Elsevier JVIS
- Reviewer for Journal of Information Fusion
- Reviewer for WACV (2024,23,22), CVPR (2024,23,22, 21), AAAI 2021, ICVGIP (2024, 23,22,21), ICCV (2021, 19), ECCV 2020

WORKSHOPS CONDUCTED AND INVITED TALKS

1. *Deep Learning for Computer Vision*
 - Indian Institute of Technology (IIT) Jammu, May 2022.
 - National Institute of Technology (NIT) Patna, April 2022.
 - Acharya Institute of Technology, Bangalore, October 2021.
 - SSM Institute of Engineering and Technology, June 2021.
 - K.L.N College of Engineering, Madurai, June 2021.
2. *Deep Learning for Computational Photography*
 - Sapthagiri College of Engineering, Bangalore, September 2021.
 - Indian Institute of Technology Hyderabad (IITH), April 2021.
3. Workshop on "Introduction to Deep Learning with Tensorflow" at Coimbatore Institute of Technology, Coimbatore (August 2017).
4. Workshop on "Computer Vision with Deep Learning" at Valeo India Pvt., Ltd., Chennai (May 2018).

PAST INTERNSHIPS

- TCS Innovation Labs, Bangalore

April - June 2018

REFERENCES

References will be provided on request.