Rajeev Yasarla

CONTACT INFORMATION

8775 Costa Verde Blvd APT 1513
San Diego, CA - 92122, USA

Phone: (+1) 4436302422
Email: rajeevyasarla19@gmail.com

SUMMARY

I am currently working as a Sr. Research Engineer at Qualcomm AI Research. I graduated with a Ph.D. degree in Electrical engineering from Electrical and Computer Engineering Dept. at Johns Hopkins University, Whiting School of Engineering. I was advised by Vishal M. Patel. My research work is recognized at different conferences like **Best paper Award** at IEEE ICIP 2021. My broad research interests are in Computer Vision, Machine Learning, and 3D vision. I have worked on a variety of topics including: VLLM based end-to-end autonomous driving, video depth estimation, low-level image restoration and enhancement, image segmentation, and domain adaptation.
[Homepage] [Google Scholar] [Linkedin]

EDUCATION

Johns Hopkins University, Baltimore, USA (Sep 2018 - May 2022)
Ph.D. in Electrical Engineering
Advisor: Prof. Vishal.M.Patel
Thesis: Deep Learning-Based Approaches For Image Restoration
Committee: Prof. Rama Chellappa, Prof. Carey E. Priebe, Prof. Vishal M. Patel

Indian Institute of Technology Madras, Chennai, India (Jul 2011 - May 2016)
B.Tech and M.Tech in Electrical Engineering
Minor in Management Sciences
Advisor: Prof. A.N. Rajagopalan
Thesis: Pedestrian detection and tracking for driver assistance

PROFESSIONAL EXPERIENCE

Sr. Deep Learning Researcher, Qualcomm AI Research, San Diego, CA (Nov 2022 - Present)
VLLM based 3D object detection and planning for autonomous cases. Formulating, text guided auxiliary tasks like scene editing, scene generation, interactive agent prediction, these tasks enables VLLM model to learn language grounded representation that is beneficial to planning task.
Research on monocular video depth estimation using future prediction and memory.
Diffusion and text based video depth generation.

Computer Vision Research Scientist, AIBEE, Palo Alto, CA (June - Oct 2022)
Research on single view joint detection and tracking.

Johns Hopkins University, Baltimore, MD (Ph.D.) (Aug 2018 - May 2022)
Research on computer vision and machine learning with a specific focus on deep learning based image restoration, salient object detection, face enhancement, medical image segmentation and domain adaptive object detection.

Research Intern, AIBEE, Palo Alto, CA (May - Aug 2021)
Research on unsupervised salient object detection.
Proposed novel method to generate pseudo labels and data augmentation technique.

Research Intern, Microsoft Corp., Seattle, WA (May - Aug 2020)
Face Enhancement of images with noise, blur, and low-light conditions project.
This project was submitted for patent, US 2022/0245776 A1.

Project Assistant, Dept. of ECE, IISc, Banglore (Sept 2017 - June 2018)
Research on joint denoising and deblurring.

Engineer, VnV team, Qualcomm India Pvt Ltd., Banglore (July 2016 - Aug 2017)
Verification and Validation engineer for DRAM module.

IIT Madras, Chennai (Masters Thesis) (June 2015 - May 2016)
Research on driver assistance pedestrian and object detection.

Intern, Robert Bosch Engineering Solutions Ltd., Banglore (May - July 2014)
Analyzing the software interface to the ADC module.

Awards

- **Best paper Award**, IEEE International Conference on Image Processing, 2021.
- Awarded student travel grant for attending ICCV 2019, by UIUC in assosication with ICCV organizing committee.
- Ranked among top 0.4% of nearly 1 million students in IITJEE 2011.
- Awarded First prize in National Fox Hunt Event of Shaastra 2013, Technical fest of Indian Institute of Technology, Madras.

Conference

1. **R Yasarla**, MK Singh, H Cai, Y Shi, J Jeong, Y Zhu, S Han, R Garrepalli, F Porikli, *FutureDepth: Learning to Predict the Future Improves Video Depth Estimation,* **ECCV**, 2024.
2. **R Yasarla**, J.M.J. Valanarasu, V.M. Patel, *Self-Supervised Denoising Transformer with Gaussian Process,* **IEEE WACV**, 2024.
3. **R Yasarla**, R Weng, W Choi, V Patel, A Sadeghian, *3SD: Self-Supervised Saliency Detection With No Labels,* **IEEE WACV**, 2024.
4. **R Yasarla**, H Cai, J Jeong, Y Shi, R Garrepalli, F Porikli, , *MAMo: Leveraging Memory and Attention for Monocular Video Depth Estimation,* **ICCV**, 2023.
5. **R Yasarla**, C.E. Priebe, V.M. Patel, *ART-SS: An Adaptive Rejection Technique for Semi-Supervised restoration for adverse weather-affected images,* **ECCV**, 2022.
6. J.M.J. Valanarasu, **R Yasarla**, V.M. Patel, *TransWeather: Transformer-based Restoration of Images Degraded by Adverse Weather Conditions,* **CVPR**, 2022.
7. **R Yasarla**, V.A. Sindagi, V.M. Patel, *Unsupervised Restoration of Weather-affected Images using Deep Gaussian Process-based CycleGAN,* **ICPR**, 2022. - **oral presentation**
8. N.G. Nair,, **R Yasarla**, V.M. Patel, *NBD-GAP: Non-Blind Image Deblurring without Clean Target Images,* In Proc. of The IEEE **ICIP**, 2022.
9. **R Yasarla**, H.V. Joze, V.M. Patel, *Network Architecture Search for Face Enhancement,* In IEEE **EUSIPCO**, 2022. - **oral presentation**
10. **R Yasarla**, V.M. Patel, *Learning to Restore Images Degraded by Atmospheric Turbulence Using Uncertainty,* In Proc. of The IEEE **ICIP**, 2021. - **Best Paper Award**
11. **R Yasarla**, V.A. Sindagi, V.M. Patel, *Syn2Real Transfer Learning for Image Deraining using Gaussian Processes,* In IEEE/CVF **CVPR**, 2020. - **oral presentation**
12. V.A. Sindagi*, P Oza*, **R Yasarla** and V.M. Patel, *Prior-based Domain Adaptive Object Detection for Adverse Weather Conditions*, **ECCV**, 2020.
13. V.A. Sindagi, **R Yasarla**, D S Babu, R. V. Babu and Vishal M. Patel, *Learning to Count in the Crowd from Limited Labeled Data*, **ECCV**, 2020.
14. **R Yasarla**, V.M. Patel, *Uncertainty Guided Multi-Scale Residual Learning-using a Cycle Spinning CNN for Single Image De-Raining,* In IEEE/CVF **CVPR**, 2019.
15. V.A. Sindagi, **R Yasarla**, V.M. Patel, *Pushing the Frontiers of Unconstrained Crowd Counting: New Dataset and Benchmark Method,* In IEEE **ICCV**, 2019.

Journals

1. **R Yasarla**, V.M. Patel, *CNN-based Restoration of a Single Face Image Degraded by Atmospheric Turbulence,* In IEEE **TBIOM**, 2022.
2. **R Yasarla**, V.A. Sindagi, V.M. Patel, *Semi-Supervised Image Deraining Using Gaussian Processes,* In IEEE **TIP**, 2021.
3. V.A. Sindagi, **R Yasarla**, V.M. Patel, *JHU-CROWD++: Large-Scale Crowd Counting Dataset and A Benchmark Method,* In IEEE **TPAMI**, 2020.
4. **R Yasarla**, V.M. Patel, *Confidence Measure Guided Single Image De-raining,* In IEEE **TIP**, 2020.
5. **R Yasarla**, F Perazzi, V.M. Patel, *Deblurring Face Images using Uncertainty Guided Multi-Stream Semantic Networks,*, IEEE **TIP**, 2020.
6. **R Yasarla***, J.M.J. Valanarasu*, V.M. Patel, *Exploring Overcomplete Representations for Single Image Deraining using CNNs,* In IEEE **JSTSP**, 2020.
7. J.M.J. Valanarasu, **R Yasarla**, P Wang, I Hacihaliloglu, V.M. Patel, *Learning to Segment Brain Anatomy from 2D Ultrasound with Less Data,* In IEEE **JSTSP**, 2020.

Patents

1. **R Yasarla**, H Cai, J Jeong, R Garrepalli, Y Shi, F Porikli, *MONOCULAR IMAGE DEPTH ESTIMATION WITH ATTENTION*, US Patent App. 18/538869, 2024.
2. H.V. Joze, **R Yasarla**, *Simultaneously correcting image degradations of multiple types in an image of a face*, US Patent App. 17/164,755, 2022.

Book chapter

1. **R Yasarla**, F Perazzi, V.M. Patel, *Deblurring Face Images Using Deep Networks*, Deep Learning-Based Face Analytics-2021, Advances in Computer Vision and Pattern Recognition.

Under review

1. **R Yasarla**, S Han, H Cai, F Porikli, *DySS: Dynamic Queries and State-Space Learning for Efficient 3D Object Detection from Multi-Camera Videos,* submitted to ICRA, 2025.

Technical Skills

Programming Languages:- *Python, C, C ++*
Softwares and Tools:- *Pytorch, Matlab, Tensorflow, OpenCV, LaTeX*

Teaching Experience

Introduction to Digital Signal Processing, ECE Dept., WSE, JHU (Fall '19, Fall '20, Fall '21)
Course Instructor: Prof. Vishal M. Patel

Data Structures and Algorithm, Dept. of Electrical Eng., IIT Madras (Spring '16)
Course Instructor: Prof. G Venkatesh

Basic Electrical Engineering, Dept. of Electrical Eng., IIT Madras (Fall '15)
Course Instructor: Prof. Ananth Krishnan

Other Activities

- Reviewer, Neurips, ICLR, CVPR, ICCV, ECCV, IEEE TIP, WACV, IJCV, AVSS, Patern Recognition Letters and IEEE Signal Processing Magazine.
- Lead Coordinator of Shaastra Circuit Design Challenge event in Shaastra 2014, IIT Madras.