



SIDHARTH GAUTAM

SR. RESEARCH SCHOLAR, MULTIMEDIA LAB, IIT-DELHI

☎ +91 9540707600

✉ sidharthgautam02@gmail.com

🌐 <https://sidharthscorpio.github.io/>

in <https://www.linkedin.com/in/sidharth-gautam-b8460289/>

RESEARCH INTERESTS

Image Processing, Computer Vision, Machine Learning.

BACKGROUND

Terrestrial Image Dehazing, Satellite Image Dehazing, Underwater Image Dehazing.

EDUCATION

Ph.D. | *Image Processing* | 7.92/10 (CGPA) **Jan, 2016 – Dec, 2021**
Indian Institute of Technology, Delhi (Dept. of Electrical Engineering) Thesis Submitted

- **Thesis Topic:** Prior-Based Optimization Approaches for Single Image Dehazing.
- **Advisor:** Prof. Dr. Tapan Gandhi, Prof. Dr. B.K. Panigrahi.
- **Abstract:** The outdoor environment can never be free from adverse weather conditions such as haze, rain, and smoke. The images captured under unpleasant conditions appear hazy due to poor atmospheric visibility and significantly suffer from low contrast, diminished sharpness, and faint colors. However, such deficiencies in image features do not guarantee faithful performance in many types of scientific researches and hinder them from being used with high-level pattern recognition algorithms and low-level feature detection applications such as object tracking, vehicle surveillance, road traffic regulation and navigation. Within the last decade, the problem of dehazing becomes extremely significant as large number of images are captured by a smartphone or compact camera. Since captured scenes are usually short-lived and hard to recreate, retrieving haze-free results using a single image is an ill-posed and under-constrained problem due to the lack of information such as the scene-depth and air-light contribution. This research aims to develop *novel priors and boundary constraints using statistical/physical properties or heuristic assumptions to forecast the unknown information required for dehazing.*

Master of Technology | *Signal Processing & Digital Design* | 8.41/10 (CGPA) **Aug, 2012 – Nov, 2014**
Delhi Technological University, (Dept. of Electronics & Communication) Delhi, India

Bachelor of Technology | *Electronics & Communication* | 62.5% **Aug, 2004 – Jul, 2008**
University Institute of Engineering & Technology Kurukshetra, India

WORK EXPERIENCE

Vellore Institute of Technology (VIT) **Vellore, India**
Assistant Professor May 2022 – Present

BML Munjal University **Gurugram, India**
Academic Fellow July 2014 – December 2015

Aravali College of Engineering and Management **Faridabad, India**
Lecturer July, 2009 – July, 2012

CONFERENCES AND PRESENTATIONS

IEEE International Conference on Image Processing **Oct, 2018**
Athens, Greece

Indian Conference on Computer Vision, Graphics and Image Processing **Dec, 2018**
International Institute of Information Technology, Hyderabad

PUBLICATIONS

- **S. Gautam**, T. Gandhi, B.K. Panigrahi, "An improved Air-light estimation scheme for single haze images using color constancy prior" in *IEEE Signal Processing Letters*, vol. 27, pp. 1695-1699, 2020, doi: 10.1109/LSP.2020.3025462.
- **S. Gautam**, T. Gandhi, B.K. Panigrahi, "A Model-based dehazing scheme for unmanned aerial vehicle system using radiance boundary constraint and graph model" in *Journal of Visual Comm. and Image Representation*, Volume 74,2021, 102993, ISSN 1047-3203.
- **S. Gautam**, T. Gandhi, B.K. Panigrahi, "An Advanced Visibility Restoration Technique for Underwater Images", in *IEEE International Conference on Image Processing, ICIP-2018*, 1757-1761.
- **S. Gautam**, T. Gandhi, B.K. Panigrahi, "Single image dehazing using image boundary constraint and nearest neighborhood optimization", in *Proceedings of the 11th Indian Conference on Computer Vision, Graphics and Image Processing, ICVGIP 2018*, Association for Computing Machinery, NY, USA.
- **S. Gautam**, T. Gandhi, B. K. Panigrahi, "WMCP-EM: An integrated dehazing framework for visibility restoration in single image," in *Computer Vision and Image Understanding, Elsevier*, Ms No. CVIU-22-387 (Under Review).
- **S. Gautam**, A. Diwakar, N. Kumar, T. Gandhi, "A Dark Channel inspired Iterative Optimization for Single Image Dehazing", in *IEEE Transaction on Image Processing*, Ms No. TIP-26297-2021 (Under Review).

ORGANIZATION OF SCIENTIFIC JOURNALS/MEETINGS

Journal Reviewer

- IEEE Transactions on Image Processing.
- Applied Soft Computing Journal, Elsevier.
- Journal of Visual Communication and Image Representation, Elsevier.

Technical Program Committee Member

- **ICRCICN-2016**: IEEE International Conference on Research in Computational Intelligence and Communication Networks, India.
- **ICACCP-2017**: International Conference on Advanced Computational and Communication Paradigms, India.

SKILLS

Programming & Tools: Python (NumPy, SciPy, Matplotlib,), MATLAB, L^AT_EX, Git

Packages & Libraries: TensorFlow, PyTorch

Operating System: Linux (Ubuntu), Windows

REFERENCES

Dr. Tapan Gandhi (PhD Supervisor)

Associate Professor, Dept. of Electrical Engg., IIT Delhi, India.

Email: tgandhi@ee.iitd.ac.in

Phone: +91-9599-284080

Dr. B.K. Panigrahi (PhD Supervisor)

Professor, Dept. of Electrical Engg., IIT Delhi, India.

Email: bkpanigrahi@ee.iitd.ac.in

Phone: +91-9582-782220