Milind Padalkar

Curriculum Vitae

Mura dello Zerbino 12,
Interno 15, Piano 3,
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Education

2011–2017 **Ph.D. in Information and Communication Technology**,
Dhirubhai Ambani Institute of Information and Communication Technology (DA-IICT), Gandhinagar, India,
CPI: 9.00/10.
Thesis title: *Novel Techniques for Auto-inpainting in Heritage Reconstruction*
Supervisor: Dr. Manjunath V. Joshi

2008–2010 **M.Tech. in Computer Engineering**,
Sardar Vallabhbhai National Institute of Technology (SVNIT), Surat, India,
CGPA: 8.75/10.
Thesis title: *Histogram Based Efficient Video Shot Detection Algorithms*
Supervisor: Dr. Mukesh A. Zaveri

2004–2008 **B.E. in Information Technology**,
Finolex Academy of Management and Technology (FAMT), Ratnagiri, University of Mumbai, India,
Aggregate Percentage: 61.67%.
Project title: *Content Based Image Retrieval System*
Supervisor: Prof. Santosh V. Jadhav

2004 **Higher Secondary Certificate (H.S.C.)**,
Maharashtra State Board, India,
Percentage: 80.50%.

2002 **Secondary School Certificate (S.S.C.)**,
Maharashtra State Board, India,
Percentage: 85.86%.

Publications

Book

[1] M. G. Padalkar, M. V. Joshi, and N. L. Khatri, *Digital Heritage Reconstruction Using Super-resolution and Inpainting*, B. A. Barsky, Ed. Synthesis Lectures on Visual Computing, Morgan & Claypool Publishers, 2016. DOI: 10.2200/S00740ED1V01Y201611VCP026.

Book Chapter

[1] M. G. Padalkar and M. V. Joshi, "Automatic detection and inpainting of defaced regions and cracks in heritage monuments," in *Digital Hampi: Preserving Indian Cultural Heritage*, A. Mallik, S. Chaudhury, V. Chandru, and S. Srinivasan, Eds. Springer Singapore, 2017. DOI: 10.1007/978-981-10-5738-0_14.

Journal

[1] M. G. Padalkar and M. V. Joshi, "Auto-inpainting heritage scenes: A complete framework for detecting and infilling cracks in images and videos with quantitative assessment," *Machine Vision and Applications*, vol. 26, no. 2-3, pp. 317–337, 2015. DOI: 10.1007/s00138-015-0661-6.

Conferences and Workshops

[1] M. G. Padalkar, C. Beltrán-González, and A. Del Bue, "Multi-illumination fusion with crack enhancement using cycle-consistent losses," in *28th IEEE International Conference on Image Processing (ICIP2021)*, [Accepted], 2021.

[2] M. G. Padalkar, C. Beltrán-González, M. Bustreo, A. Del Bue, and V. Murino, "A versatile crack inspection portable system based on classifier ensemble and controlled illumination," in *2020 25th International Conference on Pattern Recognition (ICPR)*, 2020, pp. 4009–4016. DOI: 10.1109/ICPR48806.2021.9412039.

[3] M. G. Padalkar, M. V. Joshi, and N. Khatri, "Simultaneous inpainting and super-resolution using self-learning," in *Proc. 26th British Machine Vision Conference*, X. Xie, M. W. Jones, and G. K. L. Tam, Eds., BMVA Press, 2015, pp. 105.1–105.12. DOI: 10.5244/C.29.105.

[4] M. G. Padalkar, M. V. Vora, M. V. Joshi, M. A. Zaveri, and M. S. Raval, "Identifying Vandalized Regions in Facial Images of Statues for Inpainting," in *ICIAP2013 Workshop on Multimedia for Cultural Heritage*, ser. Lecture Notes in Computer Science, vol. 8158, Springer Berlin Heidelberg, 2013, pp. 208–217. DOI: 10.1007/978-3-642-41190-8_23.

[5] M. G. Padalkar, M. V. Joshi, M. A. Zaveri, and C. M. Parmar, "Exemplar based Inpainting using Autoregressive Parameter Estimation," in *Proc. International Conference on Signal, Image and Video Processing*, ser. ICSIVP'12, 2012, pp. 154–160, ISBN: 978-93-81583-19-7.

[6] M. G. Padalkar, M. A. Zaveri, and M. V. Joshi, "SVD Based Automatic Detection of Target Regions for Image Inpainting," in *Computer Vision - ACCV 2012 Workshops*, J.-I. Park and J. Kim, Eds., ser. Lecture Notes in Computer Science, vol. 7729, Springer Berlin Heidelberg, 2012, pp. 61–71. DOI: 10.1007/978-3-642-37484-5_6.

[7] M. G. Padalkar and M. A. Zaveri, "Dissolve Detection Based Shot Identification Using Singular Value Decomposition," in *Proc. Fourth Asia International Conference on Mathematical/Analytical Modelling and Computer Simulation*, ser. AMS '10, Washington, DC, USA: IEEE Computer Society, 2010, pp. 312–316. DOI: 10.1109/AMS.2010.69.

Experience

Jan. 2019 – till date **Postdoc**,
Pattern Analysis and Computer Vision / Visual Geometry and Modelling, Istituto Italiano di Tecnologia (IIT), Genova, Italy.
Supervisors: Prof. Vittorio Murino (Jan. 2019 – Aug. 2019) & Dr. Alessio Del Bue (Aug. 2019 onwards),
Summary: Working on an automatic visual inspection system in collaboration with an industrial partner, to detect defects like cracks in the tiles of combustion chambers using different sensor modalities. For this purpose, developed new techniques to automate tile area detection, crack identification and multi-illumination image fusion by applying computer vision and deep learning based methods. Also involved in the development of a prototype that can be used to (a) acquire tile images under varying illumination conditions, (b) annotate ground truth, as well as (c) detect defects in real industrial environment. One outcome of this work has been published in ICPR2020 and another accepted for publication in ICIP2021.

Mar. 2017 – Dec. 2018 **Senior Research Engineer**,
Vehant Technologies, NOIDA, India,
Summary: Developed a novel technique for license plate super-resolution using convolutional neural networks. Worked on vehicle color recognition. Guided design engineers and interns on various projects including traffic-light phase recognition, vehicle counting, optical character recognition, image registration, vehicle model recognition using underside images, vehicle logo recognition, helmet detection, and object recognition in X-ray images.

Apr. 2016 – Jul. 2016 **Teaching Assistant**,
DA-IICT, Gandhinagar, India.

Aug. 2011 – Mar. 2016 **Junior Research Fellow (JRF)**,
DA-IICT, Gandhinagar, India,
Project: "Immersive Navigation for a Walk-through Application", a part of the *Indian Digital Heritage Project* funded by Department of Science and Technology (DST), Govt. of India.

Feb. 2011 – Jul. 2011 **Assistant Professor**,
MCA Department,
Sardar Patel Institute of Technology, Mumbai, India.

Jan. 2011 – Feb. 2011 **Lecturer**,
Department of Information Technology,
Sardar Patel Institute of Technology, Mumbai, India.

Skills

Programming	C/C++, Python, Matlab
Libraries	OpenCV, Qt, PyTorch, Keras (with Tensorflow backend), CAFFE
Publishing / Presentation	LaTeX, MS Office, LibreOffice
Operating Systems	Microsoft Windows, Linux

International Exposure

Jan. 2021 Presented paper virtually in *25th International Conference on Pattern Recognition (ICPR2020)* [Poster].

Dec. 2017 Attended *the National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG2017)* at Indian Institute of Technology Mandi, India.

Feb. 2016 Attended the ACM Distinguished Speaker talk titled "From Vision-Realistic Rendering to Vision Correcting Displays" by Prof. Brian A. Barsky (UC Berkeley) at Gandhinagar, India.

Jan. 2016 Presented two papers in *XRCI Open 2016* at Bengaluru, India [Posters].

Sept. 2015 Presented paper in the *26^{th} British Machine Vision Conference (BMVC2015)* at Swansea, United Kingdom [Poster].

Jan. 2015 Participated in the *Immersive Storytelling track, MIT Media Lab Design Innovation Workshop 2015* at Gandhinagar, India.

Dec. 2013 Attended *the National Conference on Computer Vision, Pattern Recognition, Image Processing and Graphics (NCVPRIPG2013)* at Indian Institute of Technology Jodhpur, India.

Sept. 2013 Presented paper virtually in *2nd International Workshop on Multimedia for Cultural Heritage (MM4CH2013)* [Oral].

Dec. 2012 Attended *the Eight Indian Conference on Vision, Graphics and Image Processing (ICVGIP2012)* at Indian Institute of Technology Bombay, India.

Dec. 2012 Attended *A Two Day Workshop on Digital Video Processing and Analytics (DVAP-12)* at Indian Institute of Technology Madras, India.

Jan. 2012 Presented paper in the *International Conference on Signal, Image and Video Processing (ICSIVP2012)* at Indian Institute of Technology Patna, India. [Oral]

May 2010 Presented paper in the *Fourth Asia International Conference on Mathematical/Analytical Modelling and Computer Simulation (AMS2010)* at Kota Kinabalu, Malaysia [Oral].

Awards and Honours

June 2021 Invited to serve as a *Reviewer* for The 32nd British Machine Vision Conference.
(Invited by: Programme Chair, BMVC2021).

May 2021 Invited to serve as a *Reviewer* for *The 3rd workshop on Structuring and Understanding of Multimedia Heritage Contents*, to be held in conjunction with ACM Multimedia 2021.
(Invited by: Workshop Organizers).

Dec. 2020 onwards Serving as a *Member of the Reviewer Board* for Journal of Imaging.
(Invited by: Managing Editor, Journal of Imaging).

Sept. 2020 Served as a *Reviewer* for the ICES Journal of Marine Science.
(Invited by: Editor, ICES Journal of Marine Science).

Sept. 2018 – Dec. 2018 Served as a *Reviewer* for Multimedia Tools and Applications.
(Invited by: Editor-in-Chief, Multimedia Tools and Applications).

Aug. 2018 Served as a *Reviewer* for Multimedia Tools and Applications.
(Invited by: Guest Editor for Special Issue: 1119 – Deep Learning for Computer-aided Medical Diagnosis, Multimedia Tools and Applications).

Jan. 2018 Served as a *Reviewer* for IEEE Access.
(Invited by: IEEE Access Associate Editor).

Jul. 2017 Served as a *Reviewer* for Imaging Science Journal.
(Invited by: Chief Editor, Imaging Science Journal).

Sept. 2015 Awarded the *Xerox Research Centre India Travel Grant (₹ 1,25,000)* to attend the 26^{th} British Machine Vision Conference (BMVC2015) at Swansea, United Kingdom.

Nov. 2014 Served as an *Organizing Committee Member* for the *3rd ACCV Workshop on e-Heritage*, held in conjunction with the 12th Asian Conference on Computer Vision (ACCV2014), Singapore.

Sept. 2014 Served as a *Reviewer* for the Eighth International Conference on Advances in Pattern Recognition (ICAPR 2015), Kolkata.
(Invited by: Program Chairs, ICAPR 2015).

Jan. 2014 Served as a *Reviewer* for Multimedia Tools and Applications.
(Invited by: The Editorial Office, Multimedia Tools and Applications).

Competitive Exams

2007 **Graduate Aptitude Test in Engineering (GATE)**,
Discipline: Information Technology,
All India Rank: 46.

Extra Curricular Activities

2007–2008 General Secretary of the institute (FAMT)

2007–2008 Chief Coordinator of the Information Technology Students Association (FAMT)

2005–2007 Coordinator for Athletics – Annual Sports (FAMT)

1999–2007 Participated and won in various games like Athletics, Chess and Football at College, Division, State and National level events

2001–2002 Awarded as the *National Athlete of the Year* by school (Vidya Vikasini English High School, Vasai, India)

Hobbies

♪♫♫ Playing musical instruments like mouth-organ & guitar.

Blog I also like to write articles in my blog: http://milindpadalkar.wordpress.com

References

- **Dr. Manjunath V. Joshi**
  Professor, DA-IICT, Gandhinagar, India
  ✉ *mv_joshi@daiict.ac.in* ☎ +91-79-30510611
- **Dr. Mukesh A. Zaveri**
  Professor, Computer Engineering Department, SVNIT, Surat, India
  ✉ *mazaveri@coed.svnit.ac.in* ☎ +91-261-2201766