HIYA ROY

(+81) 090-1258-4258 ⋄ hiyaroy12@gmail.com ⋄ https://hiyaroy12.github.io/

Nationality: Indian ⋄ Date of Birth: 12th November, 1990

RESEARCH INTERESTS

My research interests are in computer vision, machine learning, deep learning, and image processing.

EDUCATION

The University of Tokyo, Japan   Sept 2017 – Mar 2021
Doctor of Philosophy (Ph.D),
Advisor: Dr. Tatsuaki Hashimoto, Dr. Toshihiko Yamasaki
Department of Electrical Engineering & Information Systems, GPA: **3.9/4**
Dissertation Topic: Deep Learning for Planetary Exploration: Improving image analysis capabilities under limited data resources.

The University of Tokyo, Japan   Sept 2015 – Aug 2017
Master of Science (M.S),
Advisor: Dr. Tatsuaki Hashimoto
Department of Electrical Engineering & Information Systems, GPA: **3.94/4**
Dissertation Topic: Planetary surface image recognition using deep learning.

Jadavpur University, India.   July 2008 - June 2012
Bachelor of Engineering (B.E)(Hons.)
Department of Electrical Engineering, GPA: **8.57/10** (Top 10%)

WORK EXPERIENCE

Rakuten Institute of Technology, Japan   Apr 2021 – Present
Position: Research Scientist
Creative AI, Vision Program Tokyo, Manager: Bjorn Stenger.
Task: To automatically design banners for Rakuten Merchants. Also working on structurally consistent prediction of partially occluded objects (image outpainting) using Vision Transformers.

NASA JPL (CalTech), USA   Oct 2019 – Jan 2020
Position: Visiting Student Researcher
Worked with the Machine learning-based Analytics for Autonomous Rover Systems (MAARS) research group on the Robotic Surface Mobility Group (347F); Supervisor: Dr. Masahiro Ono
Task: To develop a joint lightweight neural network framework for Multitask learning (image segmentation and captioning) onboard planetary rovers.

NEC Data Science Research Laboratories, Japan   Jan 2017-Mar 2017
Position: Research Intern
Task: Worked on Automatic Target Recognition on SAR images using deep learning techniques.

Tata Power Company Limited, India   July 2012 – July 2015
Position: Lead engineer
Task: Worked as a core Electrical Testing engineer to conditionally monitor and test all electrical equipment, to carry out commissioning tests of new switchgear equipment and relay panels.

PUBLICATIONS

Journal

- Chaudhury S., **Roy H.**, Mishra S., Yamasaki T., **Adversarial Training Time Attack against Discriminative and Generative Convolutional Models**, IEEE Access (2021).

- **Roy H.**, Chaudhury S., Yamasaki T., Hashimoto T., **Image inpainting using frequency domain priors**, SPIE Journal of Electronic Imaging, 30(2), 023016 (2021).

- **Roy H.**, Chaudhury S., Yamasaki T., Hashimoto T., **Toward Better Planetary Surface Exploration by Mars Orbital Imagery Inpainting**, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing (2020).

- Verspieren Q., Coral G., Pyne B., **Roy H.**, **An Early History of the Philippine Space Development program**, Acta Astronautica, Volume 151, October 2018, Pages 919 - 927.

Conference

- Ono M., Rothrock B., Otsu K., Higa S., Iwashita Y., Didier A., Islam T., Laporte C., Sun V., Stack K., Sawoniewicz J., Daftry S., Timmaraju V., Sahnoune S., Mattmann C., Lamarre O., Ghosh S., Qiu D., Nomura S., **Roy H.**, **MAARS: Machine Learning-Based Analytics for Rover Systems**, IEEE Aerospace conference 2020.

- **Roy H.**, Chaudhury S., Yamasaki T., DeLatte D.M., Ohtake M., Hashimoto T., **Lunar surface image restoration using U-Net based deep neural networks**, 50th Lunar and Planetary Science Conference 2019.

- **Roy H.**, Yamasaki T., Hashimoto T., **Do hashtags help? − Image aesthetics prediction using only hashtags**, Women in Computer Vision Workshop (WICV), CVPR 2018.

- **Roy H.**, Yamasaki T., Hashimoto T., **Predicting Image Aesthetics using Objects in the Scene**, International Joint Workshop on Multimedia Artworks Analysis and Attractiveness Computing in Multimedia (MMArt and ACM) in conjunction with ICMR, June 2018.

- Chaudhury S., and **Roy H.**, **Can fully convolutional networks perform well for general image restoration problems?**, Intl. Conf. on Machine Vision Applications, 2017.

Book chapter

- **Roy H.**, Chaudhury S., Yamasaki T., Hashimoto T., **Chapter 10: Enhancing Spatial Resolution of Remotely Sensed Imagery Using Deep Learning and/or Data Restoration, Machine Learning for Planetary Science**, 1st Edition, Elsevier Science and Technology Books", published on March 22, 2022.

TECHNICAL SKILL

Machine Learning tools	PyTorch, Tensorflow, scikit-learn, Theano + Lasagne, Keras, Caffe
Language and Tools	Python and MATLAB, OpenCV, CUDA, Latex, Git,

AWARDS AND ACHIEVEMENTS

- Awarded **MEXT Fellowship** by the Govt. of Japan for graduate studies. Oct 2015 - Aug 2020

- Awarded certificate for **Global Leader Program for Social Design and Management(GSDM)** by the University of Tokyo.   Oct 2016 - Mar 2021

- Secured **rank 278 (99.722 percentile)** in WB Engineering Entrance Examination 2008.

- Awarded **Amul Vidya Bhushan** title for outstanding Academic performance [**rank:12 (99.996 percentile)**] at the WB Higher Secondary Examination 2008.

- Participated in CSIR Program on Youth for leadership in Science for outstanding performance [**rank:20 (99.997 percentile)**] WB Secondary Board Examination 2006.